MC361 / MC561 / CX2731MFP
Service & Troubleshooting Guide

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Chapter 1 Maintenance Procedures – Printer

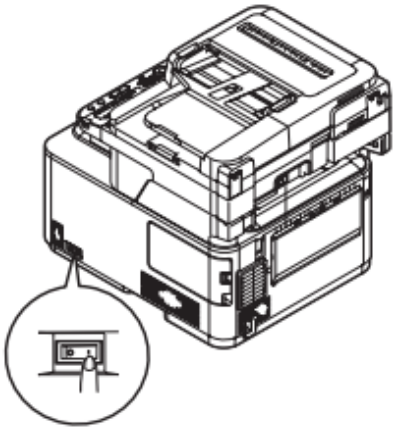
1.1 Exterior Cleaning

Clean inside and outside of the printer with a clean dry cleaning cloth and small vacuum cleaner as required.

Note! **Be careful not to touch the image drum terminals, the LED lens array and the LED head connectors.**

- **Turn OFF the power of the MFP.**

  Turn off the power switch on the printer.

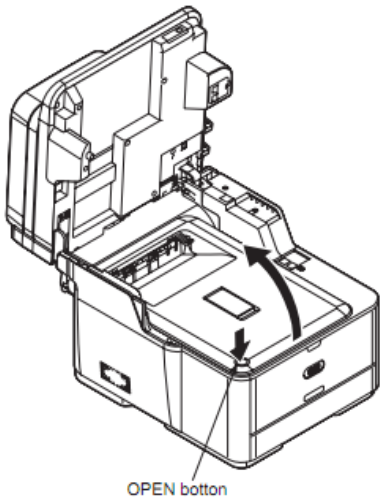


- **Clean the surface of MFP.**

Note! **Do not use any liquid other than water and neutral detergent. The MFP requires no lubrication.**

1.2 Cleaning the LED lens array

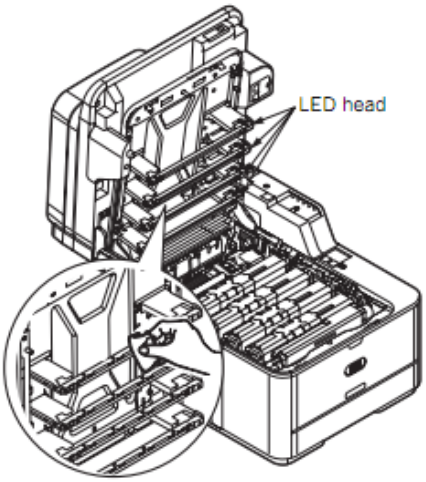
- **Lift the scanner.**



- **Press the top cover open button and lift in the direction indicated.**

Caution! Failure to proceed with caution may result in burn injury. The fuser unit gets very hot. Do not touch the surface of the fuser unit.

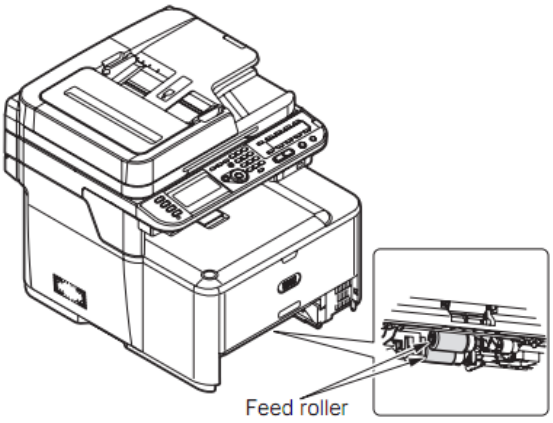
- **Wipe the lens surface (at the four positions) of the LED head with soft tissue paper gently and lightly.**



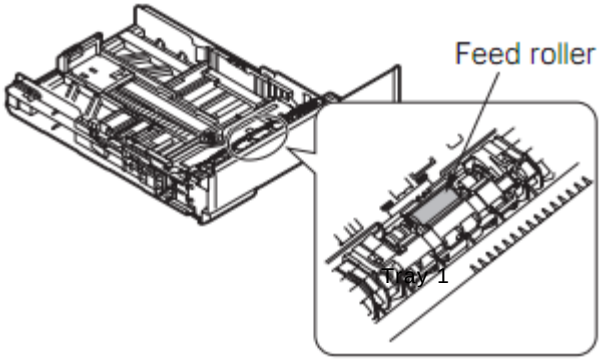
1.3 Cleaning the Paper Feed Rollers

Note! **In order not to cause damage to the surface of the roller, please use soft cloths to clean it.**

- **Pull out the tray.**
- **Wipe the paper feed rollers inside the machine with a soft cloth lightly moistened with water.**

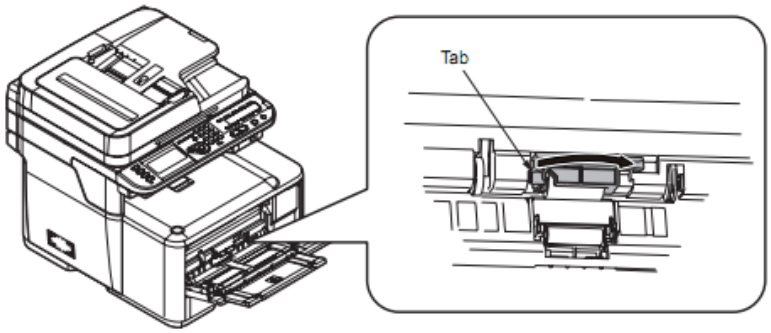


- **Wipe the paper feed roller on the paper cassette.**

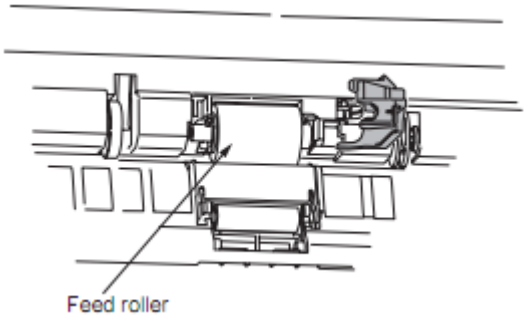


1.4 Cleaning the Paper Feed Rollers for MP Tray

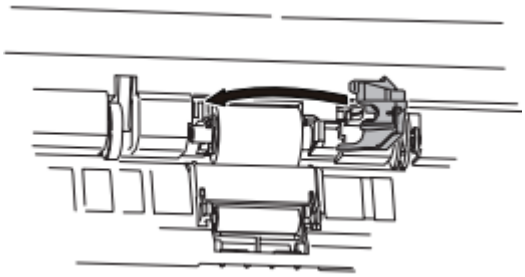
- **Open the MP tray.**
- **While pressing the tab of the paper feed roller cover to the right, open the cover.**



- **Wipe the paper feed roller with a soft cloth lightly moistened with water.**



- **Close the cover of the paper feed roller.**

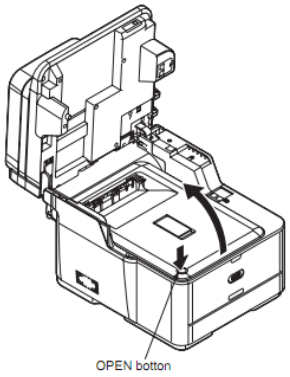


- **Close the MP tray.**

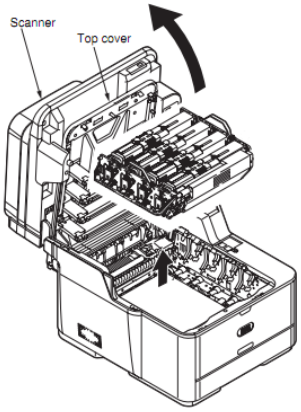
1.5 Cleaning inside the Printer

Note! **Don't touch image drum terminals, LED lens array and LED head connector. Do not use benzin, thinner and alcohol.**

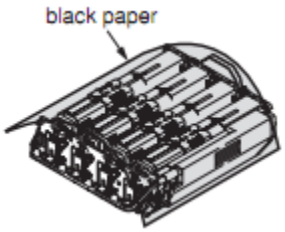
- **Turn OFF the power of the MFP.**
- **Lift the scanner. Then Press the top cover button and open the top cover.**



- **Remove the image drum unit from the MFP.**



- **Cover the removed image drum cartridge with a black paper.**

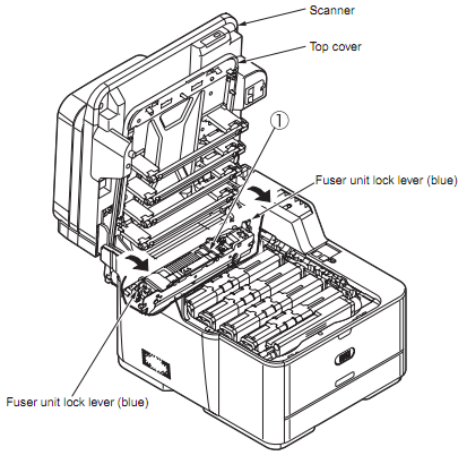


Note! **Use caution when handling the image drums. Be very careful not to expose the image drum to direct sun light or intense light. Do not leave it out under normal illumination even indoors for 5 minutes or longer.**

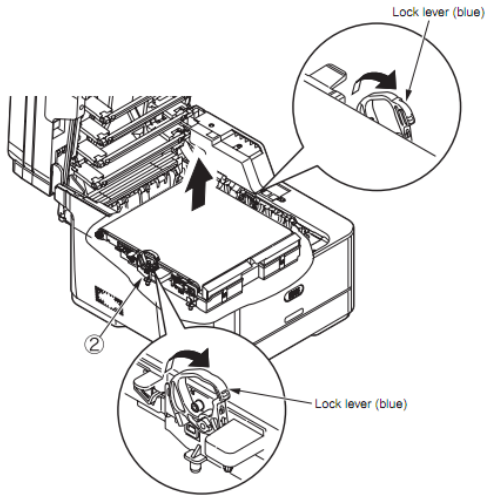
- **Remove the fuser unit from the MFP.**

Caution! **Failure to proceed with caution may result in burn injury. The fuser unit gets very hot. Do not touch the surface of the fuser unit.**

- **Release two fuser unit lock levers (blue) in the direction shown by the arrows.**
- **Hold the handle of the fuser unit and remove it.**



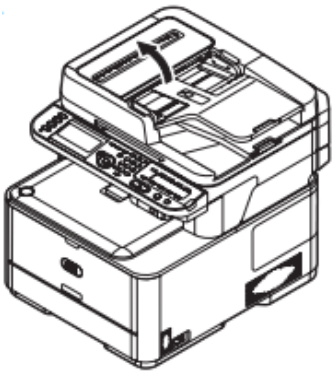
- **Remove the transfer belt from the MFP.**
- **Release two lock levers (blue) and remove the transfer belt unit from the MFP.**



- **Thoroughly clean the interior of the printer and re-install the transfer belt, fuser, and drum units. Inspect all units before re-installation.**

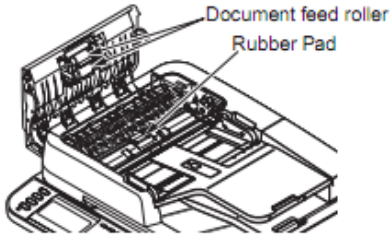
1.6 Cleaning Rollers in the ADF

Clean the paper path of the ADF once every month or more in order to maintain high print quality and to transport the documents smoothly.



- **Turn off the power to the MFP.**
- **Open the ADF cover by lifting in the direction of the arrow.**

- **Wipe the document feeding rollers with a soft cloth lightly moistened with water. Wipe the whole surface of the roller and rubber pad while turning it with your hand.**

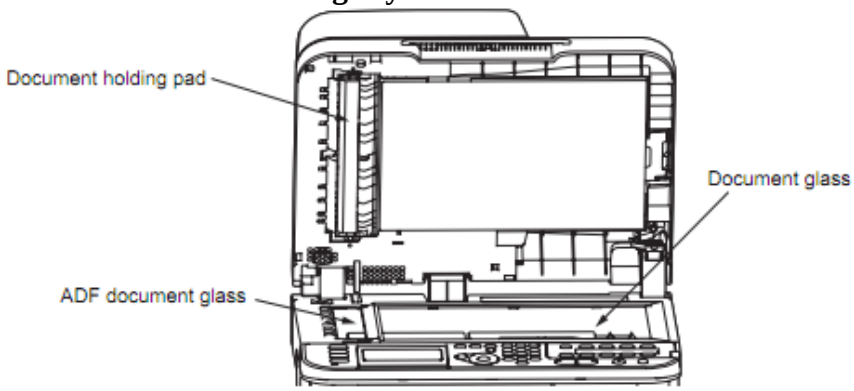


Note! **Clean the entire surface of the rollers by rotating the roller by hand. Some types of rollers can rotate in one direction only. If the rollers get too dirty, wipe them with a soft cloth lightly moistened with neutral detergent, and then wipe it again with a soft cloth lightly moistened with water.**

1.7 Cleaning the Document Glass

It is recommended to clean the document glass once a month to maintain image quality of the printouts.

- **Open the document glass cover.**
- **Wipe the document holding pad, document glass and ADF document glass surface with a soft cloth lightly moistened with water.**



Caution! **Do not use benzine, thinners or alcohol as a cleaning agent. They may damage the plastic parts of the MFP.**

Note! **Clean the surface of the document retaining pad, the platen Glass and the scanning glass with a clean cloth wrung out using clean water or neutral detergent.**

Chapter 2 Service Menus and Adjustments

The service function is to be used for the purposes of MFP maintenance by the experienced maintenance/service engineer, and is not open to general users. The respective items of the service function are contained in the service menu.

2.1 How to Enter the Service Menu

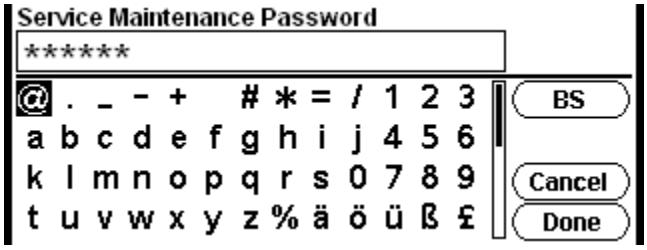
Enter the service menu by the following operation.

Special Operation of the Hardware Keys

The operation procedure to display the password entry screen of the service menu is described as follows.

1. When the equipment is in standby mode, access the password entry screen by pressing
   [Setting] # 0 1 0 3 *

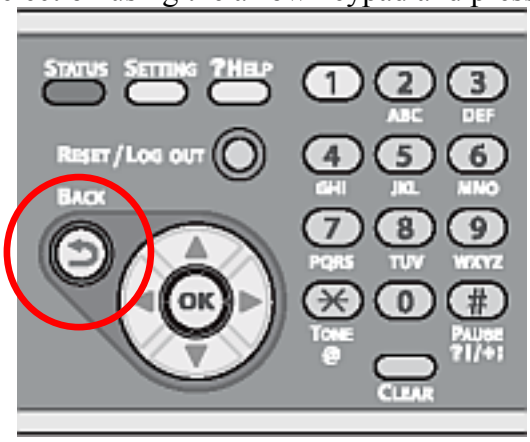
Enter the password that is required to enter the service menu **"000000" (Six zeros).**

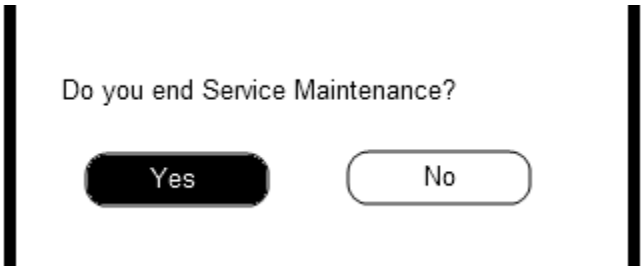


Caution! The Password can be changed by the "Change Password" menu of the "System Maintenance" menu. It is highly recommended that you ***DO NOT*** change this password. In the event that the changed password is lost, the main control board would need replacement. This is not a covered expense under any machine warranty and you will incur the cost of the replacement components.

Operation required to exit the Service Mode Screen

In order to complete operations of the service menu, press the Back button until prompted. Highlight your selection using the arrow keypad and press OK.

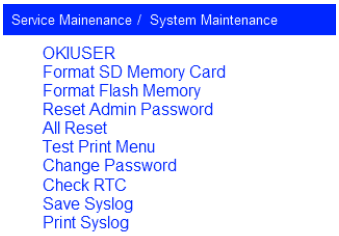




Note! If any setting change requires reboot of the MFP and the [BACK] button is pressed, the MFP will enter the normal operating condition after the MFP reboots.

2.2 Service Maintenance Menu – Overview

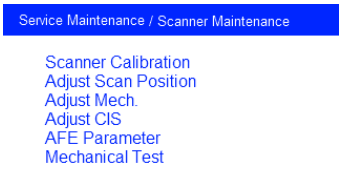
System Maintenance Screen



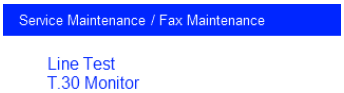
System Maintenance Screen

Panel Maintenance Screen

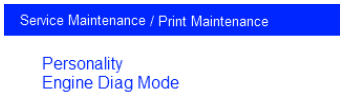
Copy Maintenance Screen



Scanner Maintenance Screen



Fax Maintenance Screen



Print Maintenance Screen

Service Maintenance Menu Structure is shown below.

Menu	Item 1	Item 2	Item 3
System Maintenance	OKIUSER *MPS Mode: MPS. Not shown during maintenance		
	Format SD Memory Card *Shown only when an SD card is connected	Execute	
	Format Flash Memory	Execute	
	Reset Admin Password	Execute	
	All Reset *MPS mode: MPS. Not shown during maintenance		
	Test Print Menu		
	Change Password	New Password	
	Check RTC		
	Save Syslog	Execute	
	Print Syslog	Execute	
Panel Maintenance	Buzzer Test		
Copy Maintenance	Color Copy		
	Print Check Pattern	Execute	
Scanner Maintenance	Scanner Calibration	Execute	
	Adjust Scan Position	FBS	Side Reg.
			Front Edge
		ADF (Front-side)	Side Reg.
			Front Edge
			Back Edge
		ADF (Back-side)	Front Edge
			Back Edge
		Adjust ADF Scan Position	
	Adjust Mech.	Adjust Mech.	FB Drive Current
			FB Keep Current
			ADF Drive Current
			ADF Keep Current
	Adjust CIS	Adjust CIS	
		Check CIS	
		Set CIS Exposure Time	
	AFE Parameter		
	Mechanical Test	ADF Test	Simplex/ Duplex
		ADF Test	Speed
			Execute
		FBS Test	Speed
			Times
			Execute
		Sensor Test	
		ADF Motor Test	
		Solenoid Test	

Menu	Item 1	Item 2	Item 3
Fax Maintenance *This menu not shown on models with no fax.	Service Bit		
	Country Code		
	Line Test	Tone Send Test	
		DP Send Test	
		MF Send Test	
		Modem Signal Send Test	
	T.30 Monitor	Execute	
Print Maintenance	Personality	IBM 5577	
		IBM PPR III XL	
		EPSON FX	
	Engine Diag Mode		

2.3 System Maintenance

OKIUSER

Sets the MFP for the Destination Country.

Note! **Should always be set for ODA** (North America). Settings other than ODA may result in erratic MFP operation. When the screen exits the service menu after this setting is changed, the MFP reboots automatically.

Format SD Card

A confirmation message is displayed when the Enter switch is pressed.
When "No" has been selected, the system returns to the previous menu.
When "Yes" has been selected, the menu is exited and formatting of the inserted SD card begins.
Displayed under the following conditions:
SD card inserted ("Boot Menu" - "Storage Setup" - "Enable SD Card" is Yes)

Format Flash ROM

Caution! Use of this command is strictly prohibited (contact design before use).
When this command is executed, the menu is exited and formatting of the resident (onboard) flash device begins.

Reset Admin Password

Returns the administrator password to the factory default value.

All Reset

Returns the content of EEPROM, flash, and the HDD to their factory default values.
When this command is executed, the following confirmation message is displayed: "This change will reboot the device automatically. Proceed?"
When "No" has been selected, the system returns to the previous menu.
When "Yes" has been selected, the menu is exited immediately and then, after rebooting, reset processing begins. See the "format scope" sheet for the scope of formatting.

Test Print Menu
Switches between displaying and not displaying the "ID Check" and "Engine Information" in the "Report" - "Print Report" category (default: DISABLE). If this item is set to "DISABLE," the "ID Check" and "Engine Information" will remain undisplayed at all times. The printer will reboot after changing the settings and exiting the menu.

Change Password
Set a new password for accessing the maintenance menu. 6 to 12 characters (numerals and lower-case alphabetic characters) may be entered.
It is highly recommended that you ***DO NOT*** change this password. In the event that the changed password is lost, the main control board and hard disk drive would need replacement. This is not a covered expense under any machine warranty and you will incur the cost of the replacement components.

Check RTC
Displays a snapshot of the current time. (The time does not change during display.)

Save Syslog
Saves the network communication log (syslog) to nonvolatile memory.

Print Syslog
Prints the network communication log (syslog).

2.4 Panel Maintenance

Buzzer Test
Select the volume of the forced buzzer. For the buzzer pattern, use the error sound (three buzzes)

2.5 Copy Maintenance

Color Copy
Switches between enabling and disabling pressing the color start key during copying. If this is set to "disabled," presses on the color start key in copy mode will be rejected by the panel.

Print Check Pattern
Starts printing from the panel using a copy evaluation test chart inside the FW.

2.6 Scanner Maintenance

Scanner Calibration
Starts execution of scanner calibration. Instead of being conducted automatically after operating for a certain period of time, calibration is executed by the user as needed. During calibration, the fact that calibration is underway is displayed.
Note: Also included under AdminSetting.

Adjust Scan Position

FBS – Side Reg. ***Value: +8 ~ -8*** ***Default: 0***

Adjust the starting read pixel position in the horizontal scanning direction during book scanning.
Adjust in intervals of one step = 4/600 dpi (=0.17 mm).

FBS – Front Edge ***Value: +30 ~ -30*** ***Default: 0***

During book scanning, add a value for the basic value (= 5 mm) when reading the shadow of the front edge of the document.
Adjust in intervals of one step = 4/600 dpi (=0.17 mm).

ADF (Front-side) – Side Reg. ***Value: +8 ~ -8*** ***Default: 0***

Adjust the starting read pixel position in the horizontal scanning direction when reading a document from the ADF.
Adjust in intervals of one step = 4/600 dpi (=0.17 mm).

ADF (Front-side) – Front Edge ***Value: +30 ~ -30*** ***Default: 0***

When reading a document from the ADF, add a value for the basic value when reading the shadow of the front edge of the document. To skip the front edge of the document, add a negative value.
Increase or decrease the number of motor pulses from detection by the sensor of the front edge of the media until actual reading starts.
Adjust in intervals of one step = 4/600 dpi (= 0.17 mm).

ADF (Front-side) – Back Edge ***Value: +30 ~ -30*** ***Default: 0***

When reading a document from the ADF, add a value for the basic value when skipping the back edge of the document. To read the shadow of the back edge of the document, add a negative value.
Increase or decrease the number of motor pulses from detection by the sensor of the back edge of the media until actual reading ends.
Adjust in intervals of one step = 4/600 dpi (= 0.17 mm).

ADF (Back-side) – Front Edge ***Value: +30 ~ -30*** ***Default: 0***

When reading a document from the ADF, add a value for the basic value when reading the shadow of the front edge of the document. To skip the front edge of the document, add a negative value.
Increase or decrease the number of motor pulses from detection by the sensor of the front edge of the media until actual reading starts.
Adjust in intervals of one step = 4/600 dpi (= 0.17 mm).

ADF (Back-side) – Back Edge ***Value: +30 ~ -30*** ***Default: 0***

When reading a document from the ADF, add a value for the basic value when skipping the back edge of the document. To read the shadow of the back edge of the document, add a negative value.
Increase or decrease the number of motor pulses from detection by the sensor of the back edge of the media until actual reading ends.
Adjust in intervals of one step = 4/600 dpi (= 0.17 mm).

Adjust ADF Scan Position ***Value: +30 ~ -30*** ***Default: 0***

Set the CIS reading position of the ADF for the focusing standard.
Adjust in intervals of one step = 4/600 dpi (= 0.17 mm). This is correlated to adjustment of the ADF front edge position.

Adjust Mech.

FB Drive Current ***Value: 1 ~ 140***

Connect a panel or PC and set the electric current value of the scanner motor.

FB Keep Current ***Value: 1 ~ 140***

ADF Drive Current ***Value: 1 ~ 140***

ADF Keep Current ***Value: 1 ~ 140***

Adjust CIS

Adjust CIS

Value: simple/R continuous/G continuous/B continuous/All continuous

Sequentially light the designated RGB colors and check them during calibration configuration duties.
Move the CIS to the standard position.
In the position moved to, sequentially light R, followed by G and B in the same manner.
Light each color for approximately 3 seconds.
Display "Testing" during execution?
→ On the panel, display "CIS light testing" and "Cancel."

Check CIS ***Value: 300dpi/600dpi/1200dpi***

-- Results displayed ---
CCD_SIG9_WID_H 0 x 000000
CCD_SIG2_WID_H 0 x 000000
Check CIS maintenance displays the exposure time at each resolution.
When resolution is set, scanner calibration is conducted at that resolution and the following results are displayed:
Red-1
Red-2
Green-1
Green-2
Blue-1
Blue-2
Lsync

Note: CIS exposure time varies with resolution.

Set CIS Exposure Time ***Value: 0 ~ 4294967295***

Change LED exposure time settings, and then read the document using PC Scan.
Reading implemented for the LED exposure time in the settings, without conducting calibration. A warning is displayed when a value greater than the Lsync cycle has been set.
Settings are shown below.
Red-1
Red-2
Green-1
Green-2
Blue-1
Blue-2
Lsync

AFE Parameter

Change AFE (IC) register settings
Decimal number displayed, decimal number set.
Maximum values vary with each register.
→ Enter the register [n] setting (n: 1 - 9). The current value is read and displayed on the panel.
Settings values are changed, configuration and reading conducted, and the results read are displayed on the panel.

R3 (03h)	R38 (26h)
R32 (20h)	R39 (27h)
R33 (21h)	R40 (28h)
R34 (22h)	R41 (29h)
R35 (23h)	R42 (2Ah)
R36 (24h)	R43 (2Bh)
R37 (25h)	R38 (26h)

Change AFE (IC) register settings (3 - 9 settings).
Then, read the document using PC Scan.
W: Display message showing that settings are complete.
R: Display read value.

Mechanical Test

ADF Test

Simplex/Duplex

Conduct mechanical testing (without reading an image).
ADF : Test moving original document (stops when set document has been moved)
May choose from single- or double-sided feeding.
FBS : CIS moving test (stops after designated number of operations)
Use fastest read speed (30 cpm).
Display "Testing" during execution?
→ On the panel, indicate current number of executions using the message "Test no. xxx underway."

Speed

Color 300 x 300dpi
Color 300 x 600dpi
Color 600 x 600dpi
Mono

Execute Test no. xxx underway

FBS Test

Speed

Color 300x300dpi
Color 300x600dpi
Color 600x600dpi
Mono

Times

0~65535

Execute Test no. xxx underway

Sensor Test

Value:

Should input wording ① ~⑤ be displayed in the right cell?

→ Display in the right cell the wording in parentheses in ① ~⑤ and the state of each sensor (H/L). Examples of this display are shown below:

① MEDIA H/L

② SCAN H/L

③ REVERSE H/L

④ADF CVR H/L

⑤ FB H/L

Display sensor status (H/L) in real time. Change the content of the display as needed when the sensor status displayed changes.

① Set-document detection sensor (MEDIA)

② Scanning sensor (SCAN)

③ Reverse sensor (REVERSE)

④ ADF cover-open senor (ADF CVR)

⑤ FB home-position sensor (FB HP)

ADF Motor Test

Value:

Forward
Forward Continuous
Reverse
Reverse Continuous
Test the ADF motor

① After a short press of the button, rotate in the CW direction for 10 seconds and then stop.

② After a long press of the button, rotate in the CW direction continuously. Stop when the Stop button is pressed.

③ After a short press of the button, rotate in the CCW direction for 10 seconds and then stop.

④ After a long press of the button, rotate in the CCW direction continuously. Stop when the Stop button is pressed.

Deemed successful at all times. No need to display results.

Display "Testing" during execution?

→ Display a message on the panel showing that testing is underway

Solenoid Test

Value:

Once
Continuous

After a short press of the button, intake for 2 seconds and then stop.
After a long press of the button, intake for 2 seconds and stop for 3 seconds repeat
Stop when the Stop button is pressed.
Deemed successful at all times. No need to display results.
Display "Testing" during execution?

→ Display a message on the panel showing that testing is underway.

2.7 Fax Maintenance

Note: This menu not shown on models with no fax.

Service Bit

Note: This is displayed only for destinations "JP1" and "JPOEM."

Country Code

This is displayed only for destinations "JP1" and "JPOEM."

Line Test

Tone Send Test ***Value: 2100Hz 1850Hz 1650Hz 1100Hz***

Tone send test conducted.

DP Send Test ***Value: 0 ~ 9, #, * Key***

DP send test conducted.

MF Send Test ***Value: 0 ~ 9, #, * Key***

MF send test conducted.

Modem Signal Send Test

Value:

V.34 (33.6Kbps)
V.34 (28.8Kbps)
V.17 (14.4Kbps)
V.17 (12.0Kbps)
V.17 (9.6Kbps)
V.17 (7.2Kbps)
V.29 (9.6Kbps)
V.29 (7.2Kbps)
V.27 (4.8Kbps)
V.27 (2.4Kbps)
V.21 (0.3Kbps)

Modem-signal send test conducted. 11 types available, including V. 34 (33.6 Kbps).

T.30 Monitor

The unit keeps the last transmission log (Tx/Rx commands) on volatile memory, and print when select **"Execute".**
If turn off the unit, the records will be lost.

Personality

IBM 5577	***Values: Enable / Disable***	
IBM PPR III XL	***Values: Enable / Disable***	***Default: Enable***
EPSON FX	***Values: Enable / Disable***	***Default: Enable***

Engine Diag Mode

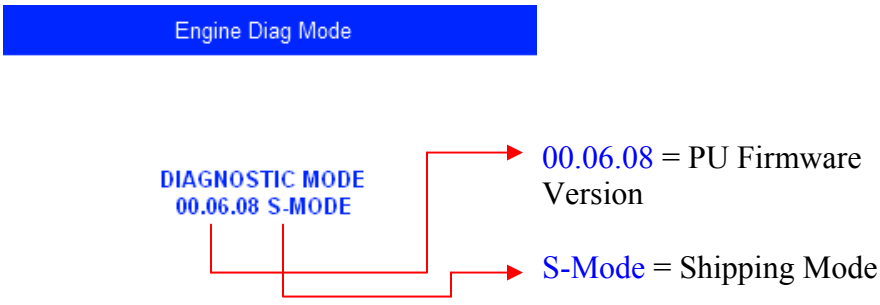
See Section 2.7

2.8 Engine Diagnostic Mode (Self-Diagnostic)

How to enter self-diagnostic mode

Note! The initial Password is set to **"000000" (Six zeros).**

1. When the equipment is in standby mode, access the password entry screen by pressing **[Setting] # 0 1 0 3 ***
2. Press the Down Arrow until Printer Maintenance is highlighted and press OK
3. Arrow down to Engine Diag Mode and press OK



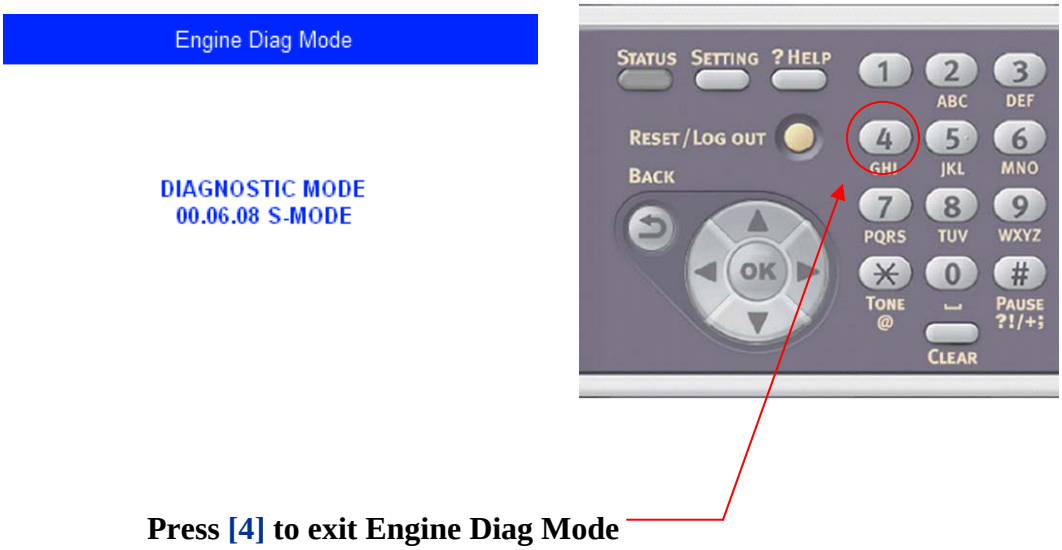
Press either **[2] key** or **[8] key** to move to the respective self-diagnostic items.
(Menu item scrolls when either **[2] key** or **[8] key** is pressed.)

Press the **[6] key** to execute the selected test. Exit the test by pressing the **[4] key.**

Level 1 Diagnostic Screens

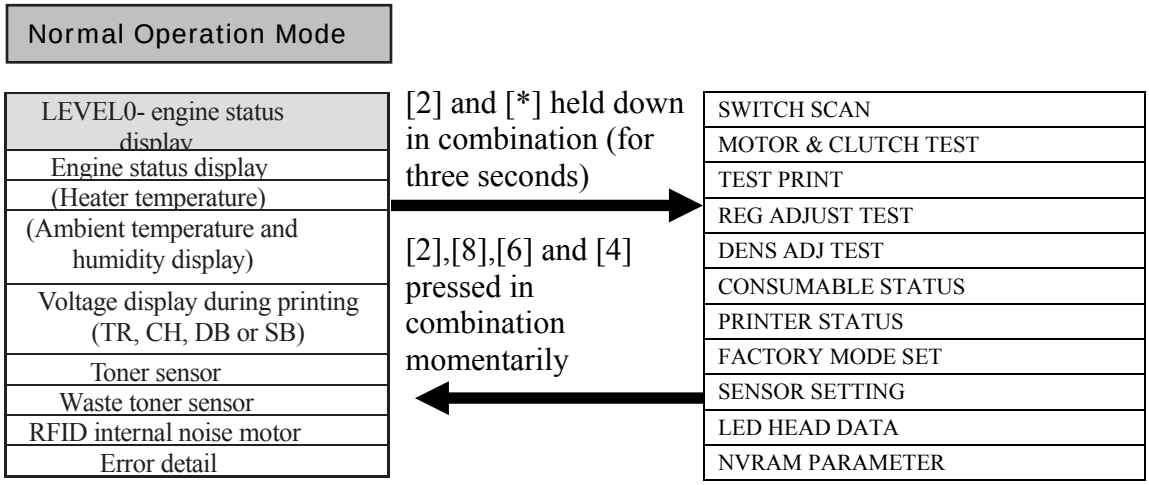
Exiting self-diagnostic mode

When the **[4]** is pressed from **DIAGNOSTIC MODE** (Window displaying/Factory state), the setting window will return.

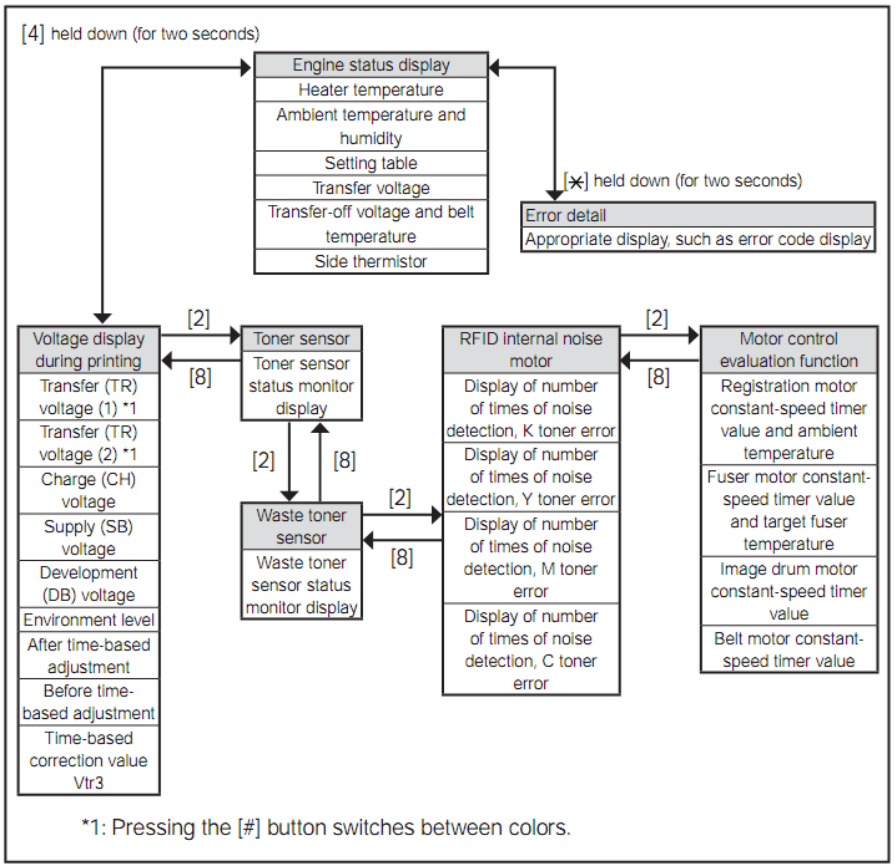


Menu option switching

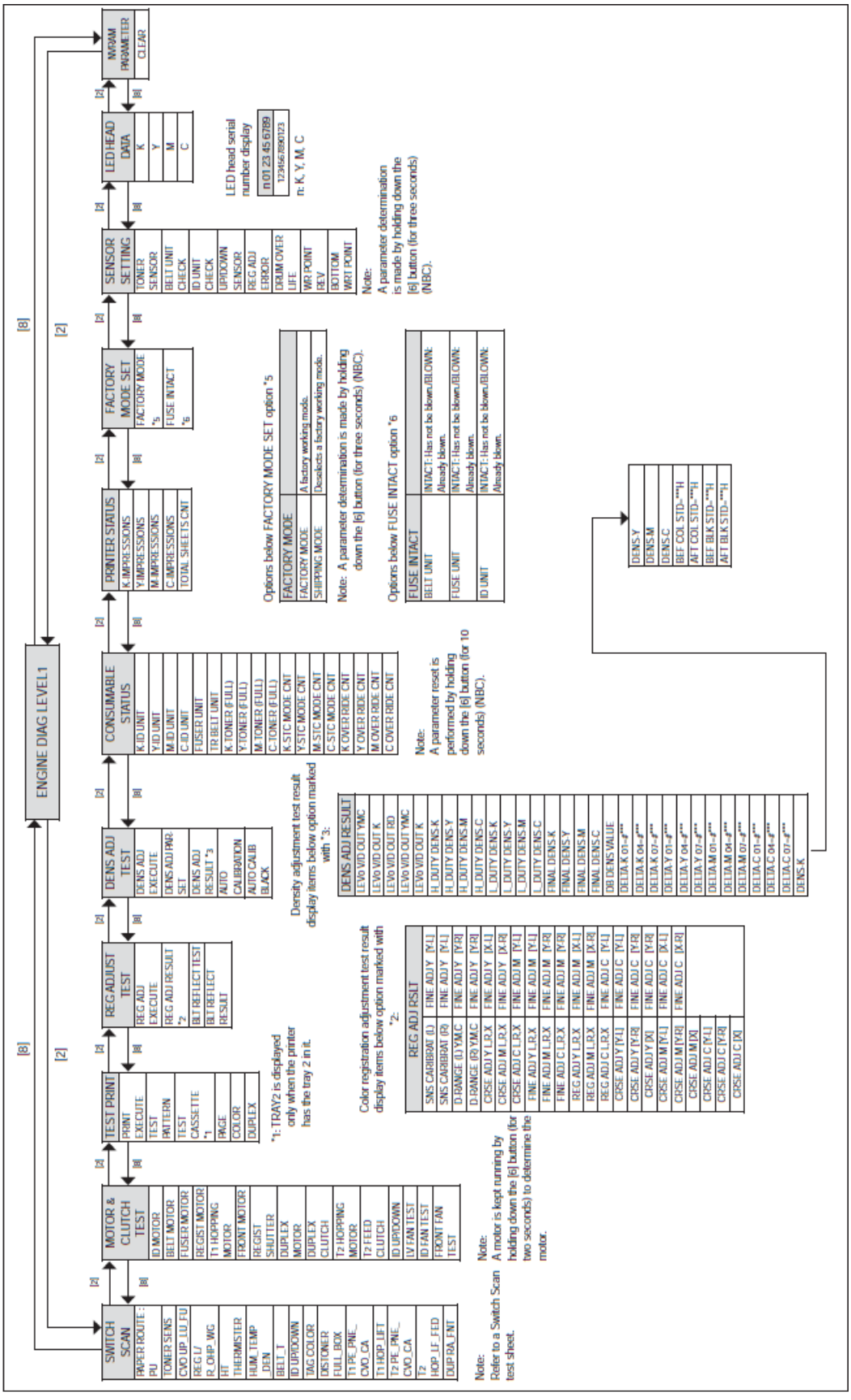
Only while displayed as shown in a shaded area [XXXXX], the level of the self-diagnostic mode can be switched. **[2]** or **[8]** is used to switch to the option in a non-shaded area [XXXXX].



Holding down [4] or [*] or momentarily pressing **[2]** or **[8]** switches between the options in shaded areas [XXXXX]. **[2]** or **[8]** is used to switch between the options in non-shaded areas [XXXXX]. Holding down **[4]** restores the display that selects an option.


[4] held down (for two seconds)
Engine status display
Heater temperature
Ambient temperature and humidity
Setting table
Transfer voltage
Transfer-off voltage and belt temperature
Side thermistor
[*] held down (for two seconds)
Error detail
Appropriate display, such as error code display
Voltage display during printing
Transfer (TR) voltage (1) *1
Transfer (TR) voltage (2) *1
Charge (CH) voltage
Supply (SB) voltage
Development (DB) voltage
Environment level
After time-based adjustment
Before time-based adjustment
Time-based correction value Vtr3
[2]
[8]
Toner sensor
Toner sensor status monitor display
Waste toner sensor
Waste toner sensor status monitor display
RFID internal noise motor
Display of number of times of noise detection, K toner error
Display of number of times of noise detection, Y toner error
Display of number of times of noise detection, M toner error
Display of number of times of noise detection, C toner error
Motor control evaluation function
Registration motor constant-speed timer value and ambient temperature
Fuser motor constant-speed timer value and target fuser temperature
Image drum motor constant-speed timer value
Belt motor constant-speed timer value
*1: Pressing the [#] button switches between colors.

[2] or **[8]** is used to select the option shown in a shaded area [XXXXX], and pressing **[6]** executes the option. **[6]** or **[4]** is used to switch to the option in a non-shaded area [XXXXX], and, after that, **[2]** or **[8]** is used to select an option. A selected test is executed by pressing **[6]**, and ended by pressing **[4]**.


ENGINE DIAG LEVEL1
SWITCH SCAN
MOTOR & CLUTCH TEST
TEST PRINT
REG.ADJUST TEST
DENS ADJ TEST
CONSUMABLE STATUS
PRINTER STATUS
FACTORY MODE SET
SENSOR SETTING
LED HEAD DATA
NVRAM PARAMETER
Note: Refer to a Switch Scan test sheet.
Note: A motor is kept running by holding down the [6] button (for two seconds) to determine the motor.
*1: TRAY2 is displayed only when the printer has the tray 2 in it.
Color registration adjustment test result display items below option marked with *2:
Density adjustment test result display items below option marked with *3:
Note: A parameter reset is performed by holding down the [6] button (for 10 seconds) (NBC).
Options below FACTORY MODE SET option *5
Note: A parameter determination is made by holding down the [6] button (for three seconds) (NBC).
Options below FUSE INTACT option *6
Note: A parameter determination is made by holding down the [6] button (for three seconds) (NBC).
LED head serial number display
n: K, Y, M, C

The following is the normal self-diagnostic mode menu:

	Option	Self Diagnostic Menu Item	Adjustment
1	Switch scan test **(See section 2.8.1)**	SWITCH SCAN	Performs input sensor and switch checking.
2	Motor and clutch test **(See section 2.8.2)**	MOTOR&CLTCH TEST	Tests motor and clutch operation.
3	Test printing **(See section 2.8.3)**	TEST PRINT	Prints a test pattern stored in the PU.
4	Color registration adjustment test **(See section 2.8.4)**	REG ADJUST TEST	Judges the color registration adjustment mechanism as pass or fail.
5	Density adjustment test **(See section 2.8.5)**	DENS ADJ TEST	Judges the density adjustment mechanism as pass or fail.
6	Consumable counter display **(See section 2.8.6)**	CONSUMABLE STATUS	Displays consumable usage.
7	Consumable life counter display **(See section 2.8.7)**	PRINTER STATUS	Displays consumable life.
8	Factory/Shipping mode setting **(See section 2.8.8)**	FACTORY MODE SET	Switches between the Factory and Shipping modes
9	Fuse status display **(See section 2.8.9)**		Displays the status of the fuses.
10	Engine parameter setting **(See section 2.8.10)**	SENSOR SETTING	Sets whether to enable or disable error detection performed by each sensor.
11	NVRAM parameter setting **(See section 2.8.11)**	NVRAM PARAMETER	Must not be used.

2.8.1 Switch Scan Test

The switch scan test is used for input sensor and switch checking.

1. Enter the self-diagnostic mode (level 1) and, until **SWITCH SCAN** appears on the upper display, press **[2]** or **[8]** (**[2]** displays the next test option and **[8]** displays the preceding test option). Then press the **[6]** button.

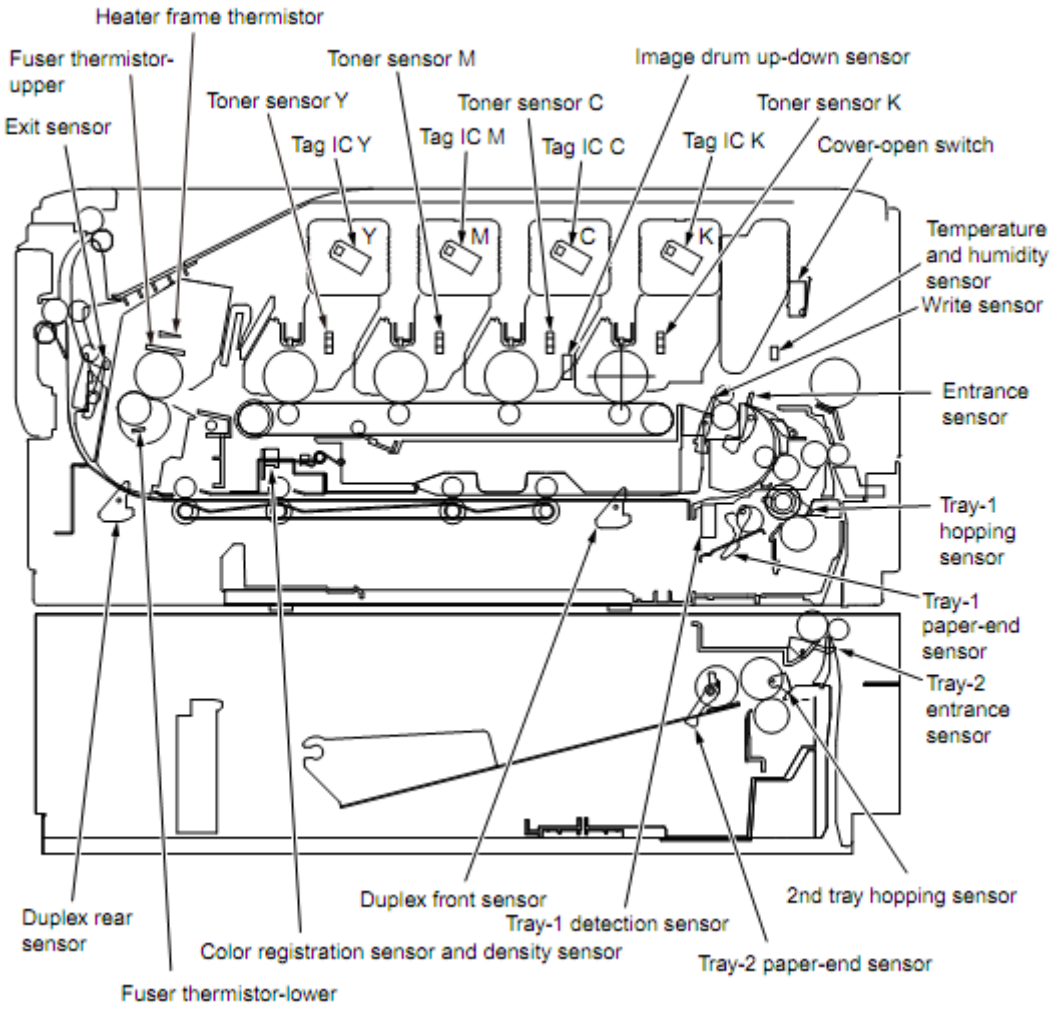
2. Press **[2]** or **[8]** until the option for unit(s) to test, which is shown in table below, appears on the lower display (**[2]** displays the next option and **[8]** displays the preceding option).

3. Press the **[6]** button. The switch scan test starts, the unit(s)' name(s) and current status(es) being displayed.

PAPER ROTE:PU
1=H 2=L 3=H 4=L

Operate the unit(s). Display information in the appropriate area(s) of the LCD display [the information varies depending on the sensor(s)].

4. Press the **[#]** button to restore the state for step 2.
5. Repeat steps 2 through 4 when necessary.
6. Press **[4]** to end the test (the state for step 1 is restored).



Switch Scan Test

Lower display shows asterisk (*) when function on upper display is unavailable

Upper Display	1		2		3		4	
	Detail	Lower Display	Detail	Lower Display	Detail	Lower Display	Detail	Lower Display
PAPER ROUTE : PU			Entrance sensor 1	H: No paper exists L: Paper exists	Write sensor	H: No paper exists L: Paper exists	Exit sensor	H: No paper exists L: Paper exists
TONER SENS	Toner sensor K	H: Light shielded L: Light reflected	Toner Y Sensor	H: Light shielded L: Light reflected	Toner M Sensor	H: Light shielded L: Light reflected	Toner C Sensor	H: Light shielded L: Light reflected
CVO UP_LU_FU	Cover-open switch	H - Close L – Open			Face-up cover-open sensor	H: Close L. Open		
REG L/R_OHP_WG	Color registration sensor L	AD value: ***H	Color registration sensor R	AD value: ***H				
HT THERMISTER	Fuser thermistor upper sensor	AD value: ***H	Fuser thermistor lower sensor	AD value: ***H			Heater frame thermistor	AD value: ***H
HUM_TEMP_DEN 1	Humidity sensor	AD value: ***H	Temperature sensor	AD value: ***H	Density sensor (K)	AD value: ***H	Density sensor (YMC)	AD value: ***H
BELT_T	Belt thermistor	AD value: ***H						
ID UP/DOWN							I/D Up Down Sns	H: Up L: Down
TAG COLOR	TAG ID	UID: ***H	TAG ID	UID: ***H	TAG ID	UID: ***H	TAG ID	UID: ***H
DISTONER FULL_BOX	Waste toner sensor	H: Light not reflected L: Light reflected						
T1 PE_PNE_CVO_CA	Tray-1 paper-end sensor	H: No paper exists L: Paper exists					Cassette sensor	H. Cassette exists L. Cassette does not exist
T1 HOP_LIFT	Hopping sensor	H: No paper exists L: Paper exists						
T2 PE_PNE_CVO_CA	Tray-2 paper-end sensor	H: No paper exists L: Paper exists						
T2 HOP_LF_FED	2nd-Hopping Sns	H: No paper exists L: Paper exists			Tray 2 entrance sensor	H: No paper exists L: Paper exists		
DUP RA_FNT			Duplex rear sensor	H: Light shielded L: Light reflected	Duplex front sensor	H: No paper exists L: Paper exists		

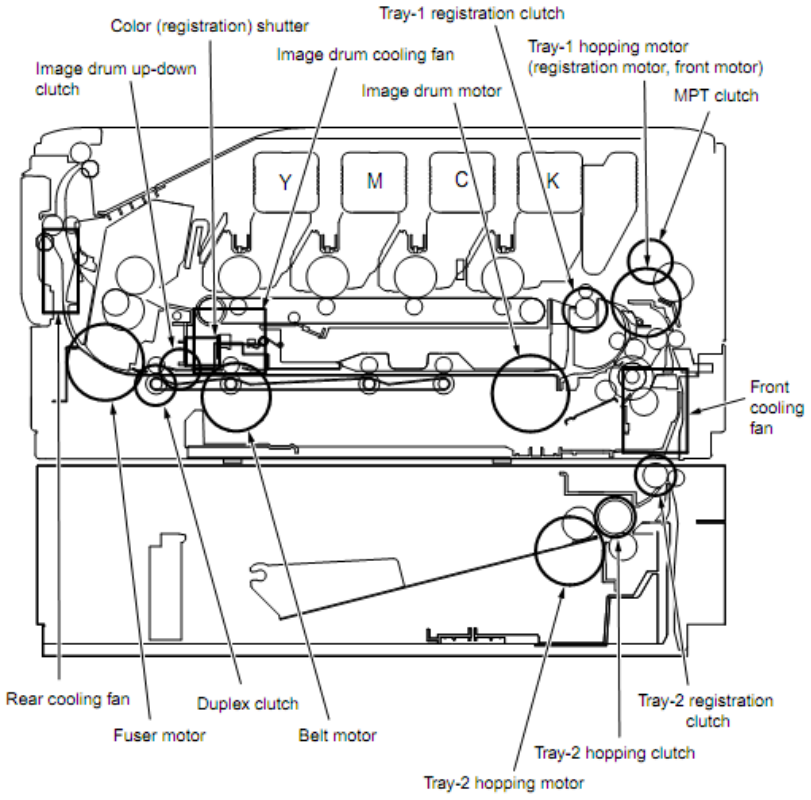
2.8.2 Motor & Clutch Test

The motor and clutch test is used for motor and clutch testing.

1. Enter the self-diagnostic mode (level 1) and, until **MOTOR & CLUTCH TEST** appears on the upper display, press **[2]** or **[8]** (**[2]** displays the next test option and **[8]** displays the preceding test option). Then press the **[6]** button.
2. Press **[2]** or **[8]** until the option for a unit to test, which is shown in the below table, appears on the lower display (**[2]** displays the next option and **[8]** displays the preceding option).

MOTOR & CLUTCH TEST
ID MOTOR

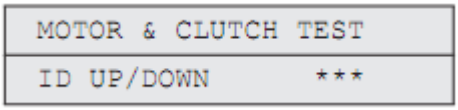
3. Press the **[6]** button. The motor and clutch test starts, the unit's the name starting to blink, and the unit being driven for10 seconds.
   Note: The state for step 2 is restored after the 10-second driving of the unit. The unit is driven again by pressing an appropriate button.
   - The clutch solenoid repeatedly turns on and off in normal printing driving (a motor is driven together with the solenoid when it cannot be driven solely because of its mechanical structure). * ID UP/DOWN continues driving until the **[#]** button is pressed.
   - The clutch solenoid is kept driven by holding down the **[6]** button (for two seconds) to determine a motor.
4. Press the **[#]** button to stop driving the unit (the display continues indicating the unit).
5. Repeat steps 2 through 4 when necessary.
6. Press **[4]** to end the test (the state for step 1 is restored).



Motor & Clutch Restrictions

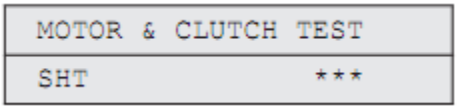
Unit name displayed	Driving restriction	Remarks
ID MOTOR	All of the (black, yellow, magenta and cyan) image drums must be removed.	–
BELT MOTOR	All of the (black, yellow, magenta and cyan) image drums must be removed.	–
FUSER_MOTOR	–	–
REGIST MOTOR	–	–
T1 HOPPING MOTOR	–	–
FRONT MOTOR	–	–
REGIST SHUTTER	–	–
DUPLEX MOTOR	–	–
DUPLEX CLUTCH	–	–
T2 HOPPING MOTOR	–	Option
T2 FEED CLUTCH	–	Option
ID UP/DOWN	The top and front cover must be closed.	–
LV FAN TEST	–	–
ID FAN TEST	–	–
FRONT FAN TEST	–	–

Note: Display while ID UP/DOWN is in progress



***: Identifies the number of executions

Display after holding down REGIST SHUTTER [6] button



***: Identifies the number of executions

2.8.3 Test Print

The test printing is used for printing test patterns stored in the PU. The controller stores the other patterns.
The test printing cannot be used to check print quality.

1. Enter the self-diagnostic mode and, until **TEST PRINT** appears on the upper display, press **[2]** or **[8]** (**[2]** displays the next test option and **[8]** displays the preceding option). Then press the **[6]** button.
2. A setting option applied only to test printing appears on the lower display. Press **[2]** or **[8]** until a target option appears (**[2]** displays the next option and **[8]** displays the preceding option). Then press the **[6]** button. [Go to step 5 when the options do not need to be set (left set to their defaults)].

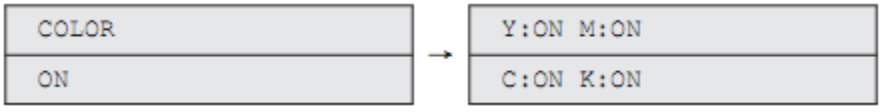
3. The setting option and its setting appear on the upper and lower displays, respectively. Pressing **[2]** displays the next setting and pressing **[8]** displays the preceding setting (the setting last displayed is applied. Press **[4]** to accept the setting and return to step 2. Repeat step 3 when necessary.

Display	Setup Value	Function
PRINT EXECUTE	-	Starts' printing with the press of **[6]** button, and ends printing with the press of the **[#]** button.
TEST PATTERN	0	0: Prints a blank page. 1 to 7: - See the next section (pattern printing) 8 to 15: Each prints a blank page.
TEST CASSETTE	TRAY1	Selects a paper source. TRAY2 is not displayed when the tray 2 is not installed.
	TRAY2	
	MPT Tray	
PAGE	0000	Sets the number of test copies to print.
COLOR	ON	Selects color or monochrome printing. * ON and OFF are provided for each color when the setting ON is specified.
	OFF	
DUPLEX	2 PAGES STACK	Performs duplex printing using a two pages layout.
	OFF	Selects turning off duplex printing.
	1 PAGES STACK	Performs duplex printing using a one page stack layout.

Default is in shaded areas (XXX). Set settings are enabled only in this test mode (not written into the EEPROM)

Note:
PAGE: Moves its input digit with **[2]** or **[8]**. The setting for this option is incremented by pressing the **[*]** button, and decremented by pressing the **[#]** button. Note that, when left set**,** the setting 0000 endlessly prints pages.

COLOR: When set to ON, with the press of the **[6]** button, displays the information shown below.
Setting option for printing colors: Moves its input position with **[2]** or **[8]**. The setting for each color is switched between ON and OFF by the press of the **[*]** or **[#]** button. The panel display is restored to the previous one by pressing **[4]**.



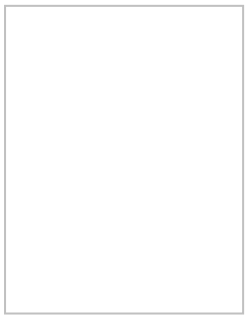
4. With **PRINT EXECUTE** displayed on the lower display by the operation in step 2, pressing the **[6]** button executes test printing by using the setting(s) made in steps 2 and 3.

The test printing is cancelled by pressing the **[#]** button.
When detected in starting or performing the test printing, an alarm shown in the detail section of the following list is displayed on the operator panel, stopping the printing.

Panel Display	Detail
PAPER END SELECTED TRAY	No paper exists.
SELECTED TRAY IS NOT INSTALLED	The selected tray is not installed.
REMOVE PAPER OUT OF DUPLEX	An internal error of the duplex unit.
INSTALL CASSETTE TRAY OPEN	A cassette is slid out.

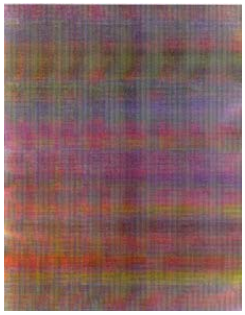
Print patterns (cannot be used for print quality checking)

0 and 8 to 15: Each prints a blank page.



Pattern 0

Pattern 1

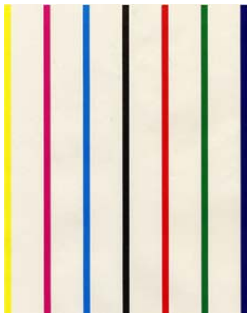


Pattern 2

Pattern 3

Pattern 4

Pattern 5



Pattern 6

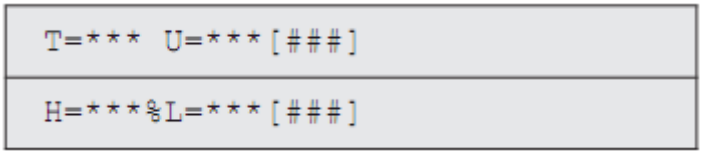
Pattern 7

Note: Solid black print (pattern 7) is included in the local printing function. An offset occurs when it is output at 100% in each color. To prevent this, the number of the colors to print concurrently to produce solid print copies of the No. 7 needs to be limited not more than two by making print color settings as instructed in step 3

- The following message appears during printing:

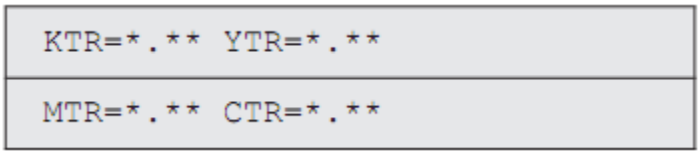
P: Number of test print pages
W: Wait time

- The displays are switched by pressing **[2]**.



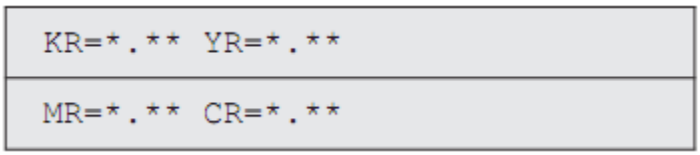
U: Three asterisks (***) identifies a measured upper heater temperature (in Celsius). Three sharp signs in square brackets ([###]) identifies a target print temperature (in Celsius).
L: Three asterisks (***) identifies a measured lower heater temperature (in Celsius). Three sharp signs in square brackets ([###]) identifies a read lower thermistor AD value (in hex).
T: A measured ambient temperature (in Celsius).
H: A measured ambient humidity (in percent figures).

- The displays are switched by pressing **[2]**.



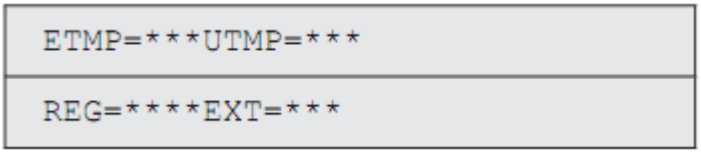
YTR, **MTR**, **CTR** and **KTR** indicate the set transfer voltage values for colors, respectively (in kV).

- The displays are switched by pressing **[2]**.



KR: A black transfer roller resistance value (in uA).
YR: A yellow transfer roller resistance value (in uA).
MR: A magenta transfer roller resistance value (in uA).
CR: A cyan transfer roller resistance value (in uA).

- The displays are switched by pressing **[2]**.

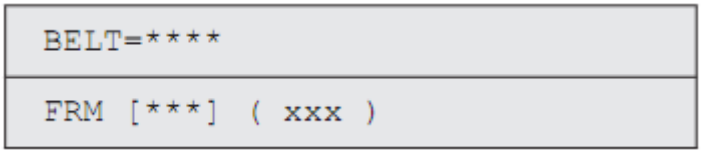


ETMP: A parameter for correction of constant hopping motor speed (an ambient temperature) (in decimal).
UTMP: A parameter for correction of constant fuser motor speed (a target fusing temperature) (in decimal).
REG: A hopping motor constant-speed timer value (a set input/output value) (in hex).
EXT: A fuser motor constant-speed timer value (a set input/output value) (in hex).

- The displays are switched to the following by pressing **[2]**.

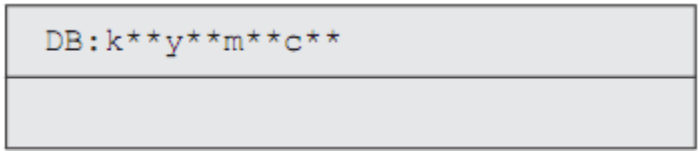
ID: An image drum motor constant-speed timer value (a set input/output value) (in hex).

- The displays are switched pressing **[2]**.



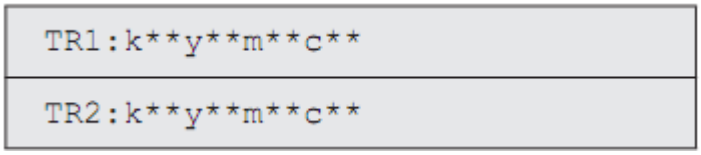
BELT: A belt motor constant-speed timer value (a set input/output value) (in hex).
FRM: Three asterisks in square brackets ([***]) identifies a read frame thermistor AD value (in hex).
Three cross signs in brackets ((xxx)) identifies a frame temperature (in Celsius).

- The displays are switched pressing **[2]**.



DB: A developing voltage setting table identification number (in hex).

- The displays are switched pressing **[2]**.



TR1: A transfer voltage parameter VTR1 table identification number (in hex).
TR2: A transfer voltage parameter VTR2 table identification number (in hex).

- The displays are switched pressing **[2]**.

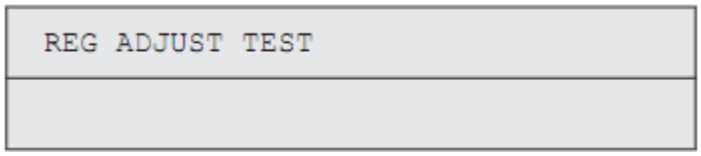
TROFF: A transfer off voltage setting table identification number (in hex).
BELT: Three cross signs and a minus sign (xxx-) identifies a read belt thermistor AD value (in hex).
Three asterisks and a minus sign (***-) identifies a belt temperature (in hex).

5. Repeat steps 2 through 4 when necessary.
6. Press the **[#]** button to end the test (the state for step 1 is restored).

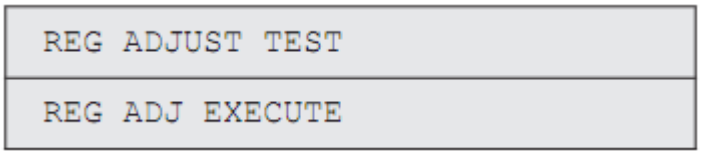
2.8.4 Color Registration Adjustment Test

The color registration adjustment test is used for adjusting color registration or investigating the causes of color misregistration.

1. Enter the self-diagnostic mode and, until the following message appears, press **[2]** or **[8]**.



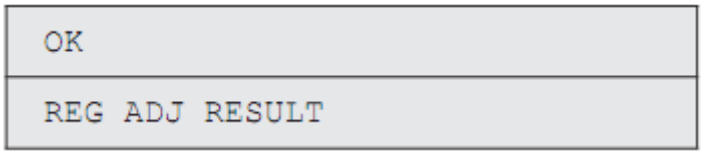
2. Press the **[6]** button and the following message appears. Press **[2]** or **[8]** until a target option appears.



3. Press the OK button, and the displayed test option is performed.

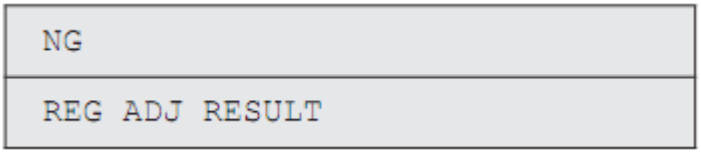
When **REG ADJ EXECUTE** is executed:

a. A color registration adjustment test starts (the ONLINE lamp starts blinking).
b. When the test ends, the upper display shows the result of the test (OK or an error name), and the lower display shows ****RESULT.



Pressing **[2]** displays the next test result. Pressing the **[8]** displays the preceding test result. Pressing **[4]** restores the state for step 2.

Remark: While the printer is initialized or issues an alarm or the cover is open, it displays the following message:

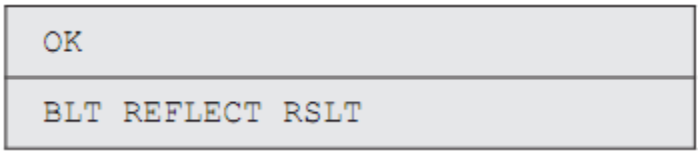


c. Pressing the **[#]** button during the test cancels the test (turning on the ONLINE lamp), restoring the state for step 2.

When **REG ADJ RESULT** is executed:
Same button operations as used when REG ADJ EXECUTE is executed.

When **BLT REFLECT TEST** is executed:

a. A color registration adjustment belt reflection test starts (the ONLINE lamp starts blinking).
b. When the test ends, the upper display shows the result of the test (OK or an error name), the lower display shows ****RESULT.

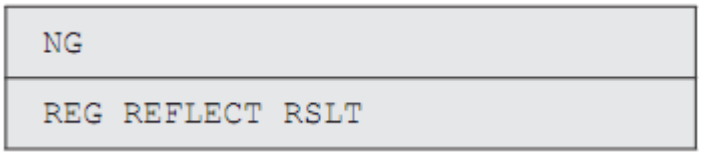


Pressing **[2]** displays the next test result. Pressing **[8]** displays the preceding test result. Pressing **[4]** restores the state for step 2.

c. Pressing the [#] button during the test cancels the test (turning on the ONLINE lamp), restoring the state for step 2.

When **BLT REFLECT RSLT** is executed:
Same button operations as used when BLT REFLECT TEST is executed.

Remark: While the printer is initialized or issues an alarm or the cover is open, it displays the following message.



4. Repeat steps 2 and 3 when necessary.
5. Press [4] to end the test (the state for step 1 is restored).

Color registration adjustment test items

Display Detail	Display Detail
REG ADJ EXECUTE	Executes color registration adjustment.
REG ADJ RESULT	Displays the result of color registration adjustment.
BLT REFLECT TEST	Judges whether color registration adjustment belt reflection is proper or not
BLT REFLECT RSLT	Displays the result of color registration adjustment belt reflection judgment.

2.8.5 Density Adjustment Test

The density adjustment test is used for performing a density adjustment function test and displaying the result of it to judge whether the density adjustment mechanism is proper.

1. Enter the self-diagnostic-mode and, until the following message appears, press **[2]** or **[8]**.

2. Press the **[6]** button and the following message appears. Press **[2]** or **[8]** until a target option appears.

DENS ADJ TEST
DENS ADJ EXECUTE

3. Press the **[6]** button, and the displayed test option is performed:

When **DENS ADJ EXECUTE** is executed:

a. A density adjustment test starts (the ONLINE lamp starts blinking).
b. When the test ends, the upper display shows the result of the test (OK or an error name), the lower display shows ****RESULT.

OK
DENS ADJ RESULT

Pressing **[2]** the next test result. Pressing **[8]** displays the preceding test result. Pressing **[4]** restores the state for step 2.

c. Pressing the **[#]** button during the test cancels the test (turning on the ONLINE lamp), restoring the state for step 2.

When **DENS ADJ RESULT** is executed:
Same button operation as (b) used when REG ADJ EXECUTE is executed.

When **DENS ADJ PAR-SET** is executed:
The setting for the density adjustment parameter is displayed.

When **AUTO CALIBRATION** is executed:

a. The density sensor sensitivity correction value is automatically set (the ONLINE lamp starts blinking).
b. When the test ends, the upper display shows the result of the test (OK or an error name), the lower display shows ****RESULT.

OK
DENS ADJ RESULT

Pressing **[2]** displays the next test result. Pressing **[8]** displays the preceding test result. Pressing **[4]** restores the state for step 2.

c. Pressing the **[#]** button during the test cancels the test (turning on the ONLINE lamp), restoring the state for step 2.

Remark: While the printer is initialized or issues an alarm or the cover is open, it displays the following message:

NG
DENS ADJ RESULT

4. Repeat step 3 when necessary.

5. Press **[4]** to end the test (the state for step 1 is restored).

Density adjustment test items

Display	Detail
DENS ADJ EXECUTE	Executes density adjustment.
DENS ADJ PAR-SET	Sets a control value for auto density adjustment.
DENS ADJ RESULT	Displays the result of density adjustment.
AUTO CALIBRATION	Automatically sets a density sensor sensitivity correction value.
AUTO CALIB BLACK	Automatically sets a black density sensor sensitivity correction value.

2.8.6 Consumable Counter Display

The consumable counter display is used for viewing the usage of consumables.

1. Enter the normal self-diagnostic mode and, until **CONSUMABLE STATUS** appears, press **[2]** or **[8]** (**[2]** displays the next test option and **[8]** displays the preceding test option). Then press the **[6]** button.
2. Press **[2]** or **[8]**, and the usage of each consumable appears (the **[*]** or **[#]** button is disabled).
3. Press **[4]** to end the option (the state for step 1 is restored).

Upper Display	Lower Display	Format	Unit	Detail
K-ID UNIT	********IMAGES	Decimal	Images	Each display the number of turns performed to date after the installation of a new image drum unit, converted on an A4 and three-pages-per job basis.
Y-ID UNIT	********IMAGES	Decimal	Images	
M-ID UNIT	********IMAGES	Decimal	Images	
C-ID UNIT	********IMAGES	Decimal	Images	
FUSER UNIT	********PRINTS	Decimal	Prints	Displays the number of pages printed to date after the installation of a new fuser unit.
TR BELT UNIT	********IMAGES	Decimal	Images	Displays the number of pages printed to date after the installation of a new belt unit.
K-TONER (FULL)	********%	Decimal	%	Each displays the usage of toner of a color.
Y-TONER (FULL)	********%	Decimal	%	
M-TONER (FULL)	********%	Decimal	%	
C-TONER (FULL)	********%	Decimal	%	
K-STC MODE CNT	********TIMES	Decimal	Times	Each displays the print dot count of toner of a color (life counter value after the printer goes into operation).
Y-STC MODE CNT	********TIMES	Decimal	Times	
M-STC MODE CNT	********TIMES	Decimal	Times	
C-STC MODE CNT	********TIMES	Decimal	Times	

Upper Display	Lower Display	Format	Unit	Detail
K OVER RIDE CNT	********TIMES	Decimal	Times	Each displays the extension life count of a toner cartridge.
Y OVER RIDE CNT	********TIMES	Decimal	Times	
M OVER RIDE CNT	********TIMES	Decimal	Times	
C OVER RIDE CNT	********TIMES	Decimal	Times	

2.8.7 Print counter display

The print counter display is used for viewing print counter values.

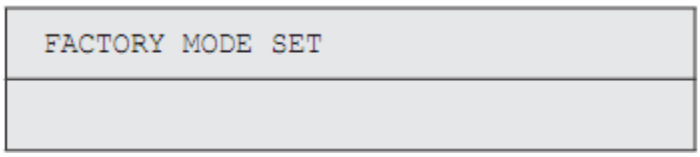
1. Enter the self-diagnostic mode and, until PRINTER STATUS appears, press [2] or [8] ([2] displays the next test option and [8] displays the preceding test option). Then press the [6] button.
2. Press [2] or [8], and each count is printed (the [*] or [#] button is disabled).
3. Press [4] to end the option (the state for step 1 is restored).

Upper Display	Lower Display	Format	Unit	Detail
K – IMPRESSIONS	********IMAGES	Decimal	Images	Number of printed sheets for each color is displayed.
Y – IMPRESSIONS	********IMAGES	Decimal	Images	
M – IMPRESSIONS	********IMAGES	Decimal	Images	
C – IMPRESSIONS	********IMAGES	Decimal	Images	
TOTAL SHEET CNT	********COUNTS	Decimal	Prints	Total number of printed sheets is displayed.

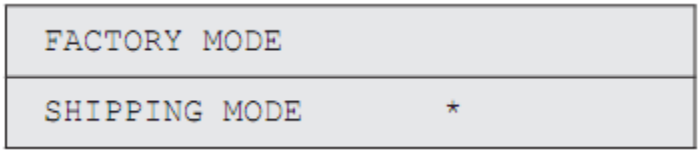
2.8.8 Factory/Shipping Mode Setting

The Factory/Shipping mode setting is used for switching from the Factory to Shipping mode.

1. Enter the self-diagnostic mode and, until the following message appears, press **[2]** or **[8]**.



2. Press **[2]** or **[8]** and the following message appears. Press **[2]** or **[8]** until an option to set (refer to the table shown below) appears.



3. By pressing the **[6]** button with the option on the display, a setting for the option can be selected.

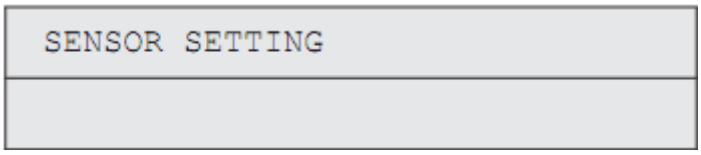
4. Hold down the **[6]** button (for three seconds) with the display showing the setting to set. The setting is stored in the EEPROM. The state for step 2 is restored.
5. Repeat steps 2 through 4 when necessary.
6. Press **[4]** to end the option (the state for step 1 is restored).

Display	Settings	Function
FACTORY MODE	FACTORY MODE	Sets up the Factory work mode. This is a production mode. ***Note!*** The unit should always be set for Shipping mode or erratic operation may result.
	SHIPPING MODE	Sets up the Shipping mode for normal operation.
FUSE INTACT ***Note!*** Indicates whether fuse is INTACT or BLOWN. Six asterisks (******) identifies INTACT or BLOWN.	BELT UNIT ******	Checks the FUSE status of the transfer belt unit.
	FUSE UNIT ******	Checks the FUSE status of the fuser.
	ID UNIT ******	Checks the FUSE status of the ID unit.

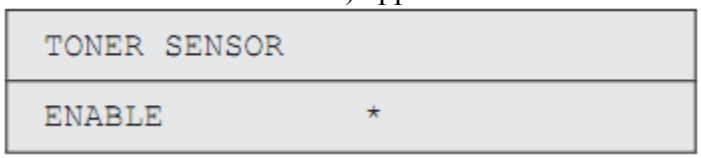
2.8.9 Self-diagnostic function setup

The self-diagnostic function setup is used for enabling or disabling the error detection by sensors. The detection can be enabled or disabled temporarily for troubleshooting. Allowing for setting engine operation options for which expert knowledge is required to be handled, these self-diagnostic setup should be used carefully.
Be sure to restore the default settings of used options of the self-diagnostic function setup.

1. Enter the self-diagnostic mode and, until the following message appears, press **[2]** or **[8]**.



2. Press **[2]** or **[8]** and the following message appears. Press **[2]** or **[8]** until an option to set (refer to the table shown below) appears.



3. A setting can be selected on the lower display by pressing the **[6]** button. **[2]** displays the next setting and **[8]** displays the preceding setting.
4. Hold down the **[6]** button (for three seconds) with the display showing the setting to set. The setting is stored in the EEPROM. The state for step 2 is restored.
5. Repeat steps 2 through 4 when necessary.
6. Press **[4]** to end setting the option (except where not in step 4) (the state for step 1 is restored).

Display	Setting	Behavior	Function
TONER SENSOR	ENABLE	Performs detection.	Enables or disables the toner sensor operation.
	DISABLE	Does not perform detection.	
BELT UNIT CHECK	ENABLE	Performs checking.	Enables or disables the belt installation checking operation.
	DISABLE	Does not perform checking.	
ID UNIT CHECK	ENABLE	Performs checking.	Enables or disables the image drum installation checking operation.
	DISABLE	Does not perform checking.	
UP/DOWN SENSOR	ENABLE	Performs detection.	Enables or disables the image drum installation checking operation.
	DISABLE	Does not perform detection.	
REG ADJUST ERROR	ENABLE	Has the printer to pause.	Enables or disables the error display based on a color misregistration detection value.
	DISABLE	Does not have the printer to pause.	
DRUM OVER LIFE	STOP	Does not extend life.	Sets whether to enable or disable extending image drum life at the end of the life.
	CONTINUANCE	Extends life.	
WR POINT REV TBL=**H±*.***mm	00H~FFH	A correction value.	Adds a correction value for the default writing point.
BOTTOM WRT POINT TBL=**H±*.***mm	00H~FFH	A tear-off value.	Sets a tear-off length from the bottom edge of paper.

Default is in shaded area

2.8.10 LED Head Serial Number Display

Not used for servicing the MFP at this time.

2.8.11 Fuse Checking

MC561/MC361/MC351 Fuse Errors

Fuse Name		Error Description	Insert Point	Resistance
CU/PU board (CLP)	F2	Service Call 128 Error 08	Front fan, hopping motor, registration clutch, hopping clutch, MPT clutch, duplex clutch	1 Ω or less
	F4	Service Call 122	Rear fan, hopping motor, registration clutch, hopping clutch, MPT clutch, duplex clutch	
	F6	Cover open	High-voltage board, ID fan, belt motor	
	F3	• Service Call 121 • The operator panel backlight blackout	PU 5V	
	F5	No display on the operator panel	CU/PU 3.3V	
	F501	• Service Call 131 to 134 • Blank page printing	LED head 5V	
High-voltage board (ORZ board)	F501	Service Call 121	High voltage board 24V	

Fuse Name		Error Description	Insert Point	Resistance
SU board (MHC)	F1	No display on the operator panel	SU, FAX, OPE	1 Ω or less
	F2	No display on the operator panel	SU, OPE	
	F3	Lamp Error	CIS	
	F501	Carriage Error	FB/ADF Motor	
	F502	Lamp Error	Clutch, Solenoid, CIS	
	F503	No display on the operator panel	SU, FAX, OPE	

2.9 Switch pressing function when power supply is turned on

When power supply of printer is turned on, the functions of usable switches are as follows. And, the switches below are effective when pressed before LED is lighted in the special start confirming pattern.

1. **[1]** key and **[▶]** key
   Despite of warning/error, always start by online mode (factory support function).
2. **[▼]** key and **[STOP]** key
   Initialize NIC settings to Factory defaults.
   When executing this initialize, all network settings will be returned to factory defaults.

3 Troubleshooting Print Quality

3.1 Print Quality Problems Overview

Print-quality defects can be attributed to printer components, consumables, media, internal software, external software applications, and environmental conditions. To successfully troubleshoot print-quality problems, eliminate as many variables as possible. The first step is to generate prints using printable pages embedded in the printer on paper from the Supported Media List. Use paper from a fresh, unopened ream that is acclimated to room temperature and humidity. If the print-quality defect is still present when printing on approved media, then investigate software applications and environmental conditions.

The printers use separate Imaging Units to develop a latent image for each color where the colors are combined on the Transfer Unit to form the final image. In most cases, print-quality defects are the result of one particular component in the print engine, **See the Repeating Defects chart**. When a single component of the Imaging Unit is causing a print quality defect, replace the Imaging Unit.

When analyzing a print-quality defect, first determine if the defect occurs in all colors or only one color and if it is repeating or random. Continuous defects in the **process direction**, such as voids and lines, are the most difficult to diagnose. Inspect the visible surfaces of all rollers for obvious defects. If no defects are observed, replace the Imaging Unit, Transfer Unit, and Fuser one at a time until the defect is eliminated.

Defects Associated with Specific Printer Components

Some print-quality problems can be associated with specific assemblies, the most common problems and the associated assemblies are listed below. Also, refer to the

printer's Troubleshooting Print-Quality Problems pages or a specific print-quality troubleshooting procedure for more information.

Imaging Unit

- Streaks in Process Direction (in the direction of feed, parallel with paper travel)
- Banding in Scan Direction (across the page, perpendicular to paper travel)
- Uneven Density
- Voids
- Repeating Defects
- Mis-registration

Transfer Unit

- Toner on the back side of the printed page (simplex mode)
- Light Prints
- Repeating Defects
- Mis-registration - only when there is obvious damage to the belt.

Fuser

- Hot or Cold Offsetting
- Repeating Defects
- Dark Streaks in Process Direction

LED Head

- Streaks in the Process Direction
- Uneven Density in the Scan Direction

Test Prints

A variety of test prints are available to aid in determining the quality of output from the printer and to assist in troubleshooting. See sections 2.8.3 and 2.8.5 for details.

3.2 Using New Consumable Units for Testing Purposes

The printer unit will allow you to utilize new consumable units for print quality diagnosis and troubleshooting purposes.

Note! When using new units (Drum, Transfer Belt, Fuser) to assist in troubleshooting, you should **temporarily** set the printer to **"Factory Mode"** (See Section 2.8.8). Setting to factory mode will allow you to use brand new units for testing purposes without cutting the fuse.

Caution! Be sure to **reset the printer to "Shipping Mode"** when testing is complete. Leaving the printer in Factory Mode may cause erratic operation of the MFP.

3.3 Things to observe when analyzing Test Pages

- Streaks in Process Direction (in the direction of feed, parallel with paper travel)
- Banding in Scan Direction (across the page, perpendicular to paper travel)
- Uneven Density
- Voids
- Repeating Defects
- Mis-registration

Note: Consult the "Repeating Defect Spacing Chart" below.

Repeating Defects Spacing

Component	Defect Spacing	Defect Location
Imaging Drum	94.3 mm	Imaging Unit
Developer Roller	30.2 mm	Imaging Unit
Charge Roller	29.9 mm	Imaging Unit
Supply Roller	43.1 mm	Imaging Unit
Fuser Belt	94.2 mm	Fuser
Heat Roller	85.4 mm	Fuser
Transfer Roller	37.7 mm	Transfer Unit

3.4 Print-Quality Troubleshooting

Light Prints in All Colors

The overall image density is too light in all colors. If the image is light in only one color, see "Light Print in Only One Color".

Initial Actions to Perform

- Perform Initial Actions from Maintenance Procedures in Chapter 1.
- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.
- Print the ID Check Pattern (Setting - Reports – Print – ID Check Pattern) and Demo page (Reports – Information – Demo Page) to see if it is an application problem.
- Perform isolation Test Prints (Section 2.8.3).
- Run the Density Adjustment Test in Section 2.8.5.

Areas of the Printer that Apply

- Imaging Unit
- LED Head
- Transfer Unit
- HVPS
- PU Board

Troubleshooting Steps	Resolution
1. Verify all packaging material has been removed form the toner cartridges	Yes – Go to Step 2 No - Remove packing material
2. Remove the Imaging Units and the Transfer Unit and check for toner contamination on the high voltage contacts. Are the contacts contaminated?	Yes – Clean the contacts No - Go to Step 3
3. Are the LED Heads dirty? Clean the heads with a clean, lint-free cloth. Did this correct the problem?	Yes – Complete No - Go to Step 4
4. Are the wiring harnesses on the LED Heads undamaged, properly routed and seated?	Yes – Repair / Replace Harnesses No - Go to Step 5
5. Inspect the high-voltage wiring harness. Reseat the wiring Harness. Did this correct the problem?	Yes – Complete No - Replace in the following order: Transfer Unit / Imaging Unit / HVPS / CUPU Board

Light Prints in Only One Color

Only one color; yellow, magenta, cyan, or black, is too light on the printed image.

Initial Actions to Perform

- Perform Initial Actions from Maintenance Procedures in Chapter 1.
- Print the ID Check Pattern (Setting - Reports – Print – ID Check Pattern) and Demo page (Setting - Reports – System – Demo Page)
- Perform isolation Test Prints (Section 2.8.3).
- Check that the Toner Cartridge pull strip is completely removed from the affected color.
- Run the Density Adjustment Test in Section 2.8.5.

Areas of the Printer that Apply

- Imaging Unit
- LED Head
- Transfer Unit
- HVPS
- PU Board

Troubleshooting Steps	Resolution
1. Verify all packaging material has been removed form the toner cartridges	Yes – Go to Step 2 No - Remove packing material
2. Print the 100% Solid Fill test print. Can the problem be isolated to one primary color?	Yes – Go to Step 3
3. Remove the Toner Cartridge and check for toner starvation in the Imaging Unit. Is there evidence of toner starvation	Yes – Replace the Toner Cartridge No - Go to Step 4
4. Remove the Imaging Units and the Transfer Unit and check for toner contamination on the high voltage contacts. Are the contacts contaminated?	Yes – Clean the contacts No - Go to Step 5
5. Are the LED Heads dirty? Clean the heads with a clean, lint-free cloth. Did this correct the problem?	Yes – Complete No - Go to Step 6
6. Swap the LED Head of the problem color with any other LED Head. Print a Solid Fill Test Pattern. Has the problem moved with the LED Head?	Yes – Replace the LED Head No - Go to Step 7
7. Are the wiring harnesses on the LED Heads undamaged, properly routed and seated?	Yes – Reseat the wiring Harnesses No - Replace in the following order: Transfer Unit / LVPS / CUPU Board

Blank Prints

Initial Actions to Perform

- Perform Initial Actions from Maintenance Procedures in Chapter 1.
- Perform isolation Test Prints (Section 2.8.3) to isolate the problem between the CU Board and the PU Board.

Areas of the Printer that Apply

- Imaging Unit
- LED Head
- PU Board

Troubleshooting Steps	Resolution
1. Print a 100% Solid Fill Test Print. Is the entire test print blank?	Yes – Go to Step 2 No - Have the customer check there application and printer settings.
2. Remove the Toner Cartridge and check for toner starvation inside the Imaging Unit. Is there evidence of toner starvation?	Yes – Replace the Toner Cartridge. No - Go to Step 3
3. Are the LED Heads dirty? Clean the heads with a clean, lint-free cloth. Did this correct the problem?	Yes – Complete No - Go to Step 4
4. Are the wiring harnesses on the LED Heads undamaged, properly routed and seated?	Yes – Go to Step 5 No - Repair / Replace Harnesses
5. Inspect the high-voltage wiring harness. Reseat the wiring Harness. Did this correct the problem?	Yes – Complete No - Replace in the following order: Transfer Unit / LVPS / HVPS / CUPU Board

Mottled or Splotchy Prints

The print image has a mottled appearance.

Note! This defect is known to occur at low humidity, and when printing on heavy weight media.

Initial Actions to Perform

- Perform Initial Actions from Maintenance Procedures in Chapter 1.
- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.
- Print the ID Check Pattern (Setting - Reports – Print – ID Check Pattern) and Demo page (Setting - Reports – System – Demo Page) to see if it is an application problem.
- Perform isolation Test Prints (Section 2.8.3).
- Run the Density Adjustment Test in Section 2.8.5.

Areas of the Printer that Apply

- Imaging Unit
- LED Head
- HVPS
- PU Board

Troubleshooting Steps	Resolution
1. Ensure the media is approved and the Control Panel and driver settings match the loaded media. Try different media to verify consistent, reproducible problem.	Yes – Go to Step 2 No - Have the customer load approved media or correct the settings.
2. Print the configuration page to verify the operating environment. NOTE: Low humidity, less than 20% relative humidity can cause mottling on prints.	Yes – Go to Step 3 No - Advise customer regarding the printer's environmental specifications.
3. Check for toner contamination on the high voltage contacts. Remove the Imaging Units and Transfer Unit. Is there contamination?	Yes – Clean the contacts No - Go to Step 4
4. Check / Replace the Transfer Unit. Is the problem resolved?	Yes – Complete No - Replace in the following order: LVPS / HVPS / CUPU Board

Unexpected Colors

The colors produced by the printer are dramatically different from the color expected.

Initial Actions to Perform

■ Perform Initial Actions from Maintenance Procedures in Chapter 1.
■ Verify the media used is supported by this printer.
■ Verify the media settings are correct at the Control Panel.
■ Print the ID Check Pattern (Setting - Reports – Print – ID Check Pattern) and Demo page (Setting - Reports – System – Demo Page) to see if it is an application problem.
■ Perform isolation Test Prints (Section 2.8.3).
■ Run the Density Adjustment Test in Section 2.8.5.

Areas of the Printer that Apply

■ Imaging Unit
■ HVPS
■ PU Board

Troubleshooting Steps	Resolution
1. Print the ID Check Pattern / Demo Page and evaluate the colors. Are the colors on the test pages representative of what the customer expects?	Yes – Complete, the problem is with the Customer application. No - Go to Step 2.
2. Print a configuration page to check the Imaging Unit life remaining. If the Imaging Unit is reaching its maximum image count, this can reduce print-quality.	Yes – replace the Imaging Unit. No - Go to Step 3.
3. Print the 100% Solid Fill Test pattern and check for any missing colors. Is the problem with a single color?	Yes –Go to Step 4. No - Go to Step 6
4. Is there debris or contamination on the LED Head?	Yes – Clean with a dry, lint free cloth. No - Go to Step 5
5. Swap the LED Head of the problem color with any other LED Head. Print a Solid Fill Test Pattern. Has the problem moved with the LED Head?	Yes – Replace the defective LED Head No – Go to Step 6
6. Swap the Imaging Unit of the problem color with any other Imaging Unit. NOTE: Remove the keys before swapping. Print a Solid Fill Test Pattern to check for defects. Has the problem color moved with the Imaging Unit?	Yes – Replace the Imaging Unit No - Go to Step 7.
7. Check for toner contamination on the high voltage contacts. Remove the Imaging Units and the Transfer Unit and Is there contamination on the contacts?	Yes – Clean the contacts. No - Go to Step 8.
8. Are the wiring harnesses on the LED heads undamaged, properly routed and seated?	Yes – Go to Step 9. No - reseat the wiring harness.
9. Inspect the high-voltage wiring harness.	Yes – reseat the wiring harness. No - Replace in the following order: Transfer Unit / LVPS / HVPS / CUPU Board

Repeating Bands, Lines, Marks, or Spots

This is usually caused by a damaged roller. In some instances, the spots may be dark instead of white and are repeated.

Initial Actions to Perform

■ Perform Initial Actions from Maintenance Procedures in Chapter 1.
■ Verify the media used is supported by this printer.
■ Verify the media settings are correct at the Control Panel.
■ Print the ID Check Pattern (Setting - Reports – Print – ID Check Pattern) and Demo page (Setting - Reports – System – Demo Page) to see if it is an application problem.
■ Perform isolation Test Prints form Section 2.8.3.
■ Run the Density Adjustment Test in Section 2.8.5.

Areas of the Printer that Apply

■ Imaging Unit
■ Fuser
■ Transfer Unit

Repeating Defects Spacing

Component	Defect Spacing	Defect Location
Imaging Drum	94.3 mm	Imaging Unit
Developer Roller	30.2 mm	Imaging Unit
Charge Roller	29.9 mm	Imaging Unit
Supply Roller	43.1 mm	Imaging Unit
Fuser Belt	94.2 mm	Fuser
Heat Roller	85.4 mm	Fuser
Transfer Roller	37.7 mm	Transfer Unit

Mis-Registration, Color Layers Not Correctly Registered

The image appears blurred and the primary colors are not aligning correctly onto the final image.

Initial Actions to Perform

■ Perform Initial Actions from Maintenance Procedures in Chapter 1.
■ Verify the media used is supported by this printer.
■ Verify the media settings are correct at the Control Panel.
■ Print the ID Check Pattern (Setting - Reports – Print – ID Check Pattern) and Demo page (Setting - Reports – System – Demo Page) to see if it is an application problem.
■ Perform isolation Test Prints (Section 2.8.3).
■ Run the Color Registration Adjustment Test (Section 2.8.4)

Areas of the Printer that Apply

■ Imaging Unit
■ LED Heads
■ Color Registration Sensors
■ Transfer Unit
■ HVPS
■ CU Board
■ PU Board

Troubleshooting Steps	Resolution
1. Cycle power to the printer. Did this correct the problem?	Yes – Complete No - Go to Step 2.
2. **Process Direction:** Remove the Imaging Units and Transfer Unit. Inspect the Color Registration Sensors for dirt, debris or toner build-up. Are the sensors clean?	Yes – Go to Step 3. No - Clean the sensors.
3. Check the Color Registration Shutter. Run the Service Diagnostics Registration Shutter test. Is the shutter functioning correctly?	Yes – Go to Step 4. No - Replace the solenoid or harness.
4. Inspect the Transfer Unit for tears or damage on the edges of the belt. Is the belt damaged?	Yes – Replace Transfer Unit. No - Go to Step 5.
5. Check the Drum drive gears for missing or worn gear teeth. Run the Service Diagnostics Imaging Unit Motors tests to visually inspect the gears. Are the gears working correctly?	Yes – Go to Step 6. No - Replace the Drum Drive Gear.
6. Replace the Registration Sensor Board. Did this fix the problem?	Yes – Complete. No - Go to Step 7.
7. **Scan Direction:** Use the configuration page to identify the problem color. Remove the Imaging Unit of the suspect color. Inspect the grounding shaft. Has the shaft shifted?	Yes – Replace the Imaging Unit. No - Go to Step 8.
8. Check the Imaging Unit guides for debris or damage. Are the guides damaged or obstructed?	Yes – Clean the guides on the chassis or replace assembly. No - Go to Step 9.
9. Check the Color Registration Sensors for dirt or debris. Be sure to check in and around the registration shutter.	Yes – Clean the sensor. No - Go to Step 10.
10. Check the Color Registration Shutter. Run the Service Diagnostics Registration Shutter test. Is the shutter functioning correctly?	Yes – Go to Step 11. No - Replace the solenoid or harness.
11. Are the LED Head ribbon cables undamaged, properly routed and seated?	Yes – Go to Step 12. No - Reseat, correctly route or replace the wiring harness.
12. Swap the LED Head of the problem color with any other LED Head. Print a Supplies page. Has the problem moved with the LED Head?	Yes – Replace the defective LED Head No - Go to Step13.
13. Replace the Registration Sensor Board. Did this fix the problem?	Yes – Complete. No - Go to Step14.
15. Replace the CUPU Board.	End

4.1 Troubleshooting Paper Feed

⚠ Warning

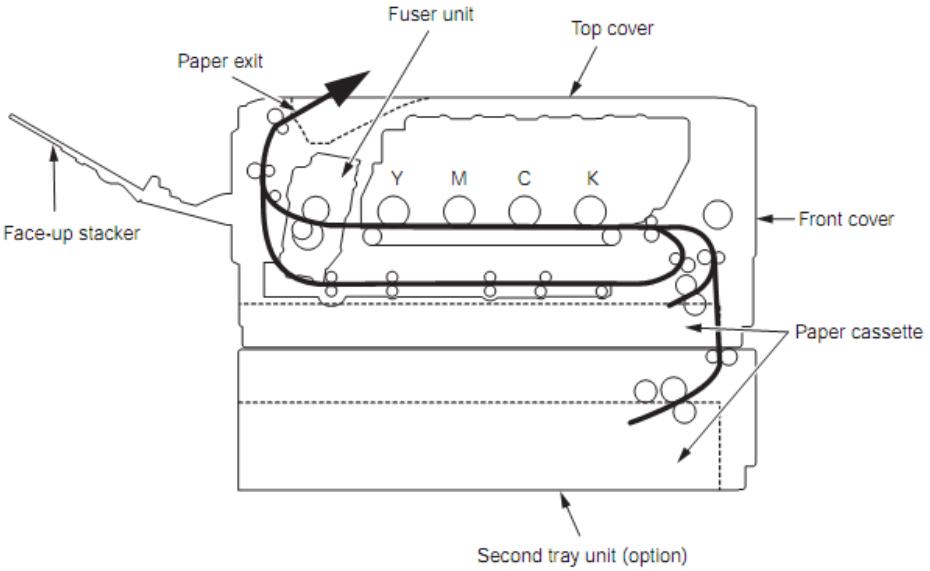
- If the machine has turned on, the fuser unit may be hot. This area is cleanly labelled. Do not touch

⚠ Caution

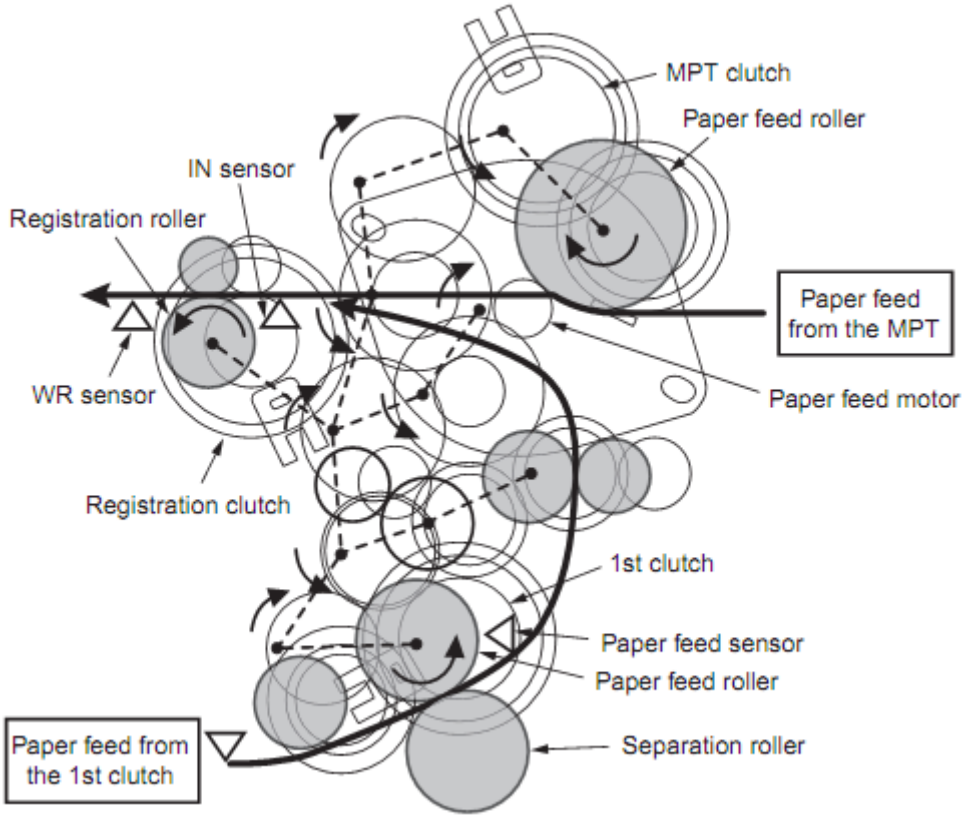
- The image drum (the green tube) is very delicate. Handle it carefully.
- Do not expose the image drum unit to direct sunlight or very bright interior light (approximately more than 1500lux). Even under the normal interior light, do not leave it for more than 5 minutes.

4.1.1 Printing Process

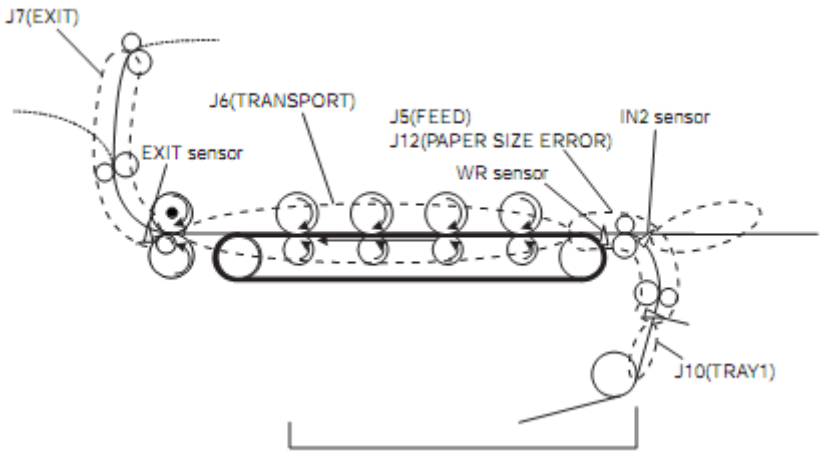
Paper path through printer



Tray 1 and MPT Paper Feed

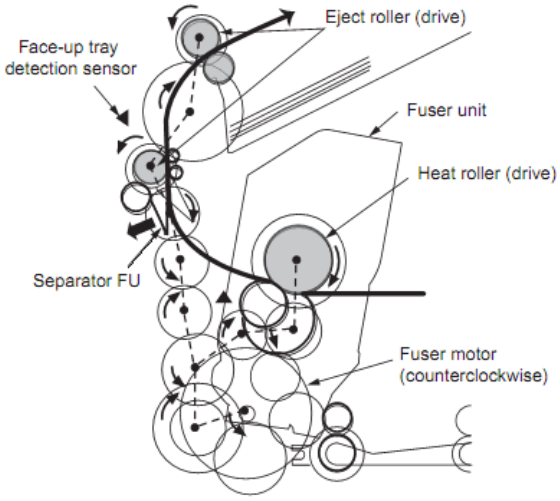


Transport Path Sensors

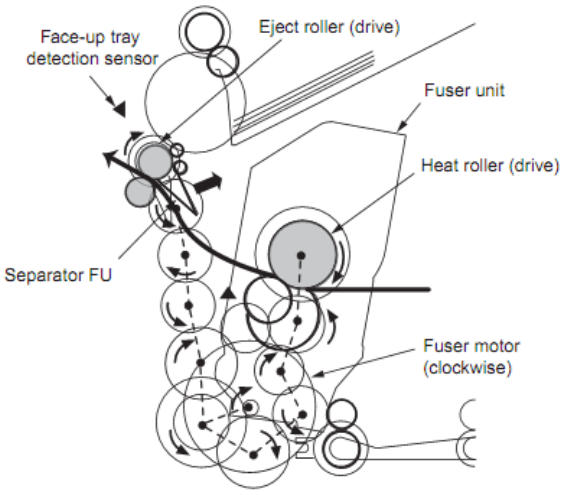


Location	Reference	Sensor
Feed (front cover jam)	J5	IN2, WR
Transport (paper feed jam)	J6	IN1, IN2, WR, EXIT
Exit (paper reject jam)	J7	EXIT
Tray1 (paper feed jam)	J10	N1
Paper size error (paper size error)	J12	N1

Paper Exit – Face-Down Stacker



Paper Exit – Face-Up Stacker

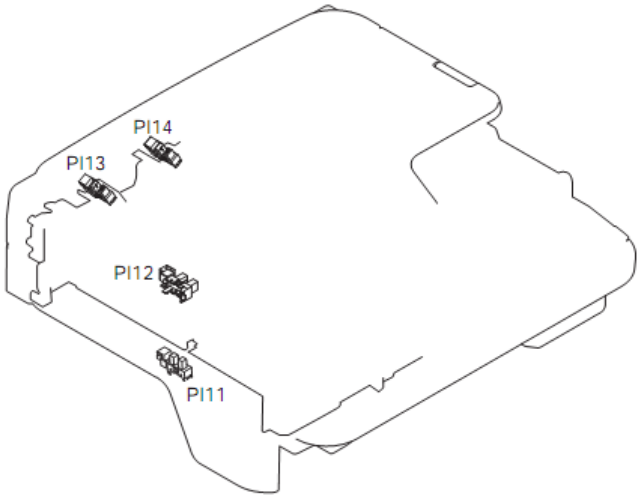


Paper Jam Code Table for the print engine

Code Number	Jam Location
370	Duplex reversal
371	Duplex input
372	Feed error at Duplex
373	Multi-feed in Duplex Unit
380	Feed
381	Transport
382	Exit

Code Number	Jam Location
383	Duplex entry
385	Around Fuser Unit
390	Feed error at front feeder
391	Tray1
392	Tray2
400	Paper size error

Diagram showing paper detection sensors in the RADF



Note! The RADF detects a jam using the sensors shown above. Document jam check timings are stored in the ROM on the Main PCB to check whether a jam has occurred according to presence/absence of the document at the relevant sensor position.
There are no jam codes generated for the RADF

Sensor Location Table for the RADF

Sensor	Description
PI 11	Regist paper sensor
PI 12	Reverse paper sensor
PI 13	Cover open/close sensor
PI 14	Document set sensor

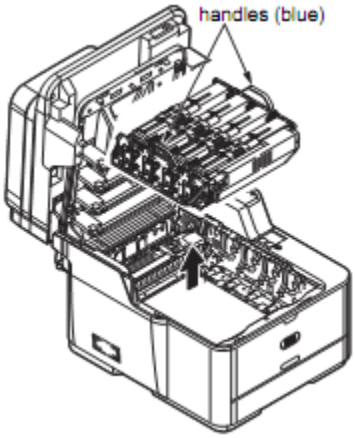
4.1.2 Jam Removal Procedure

Error Code 370, 371

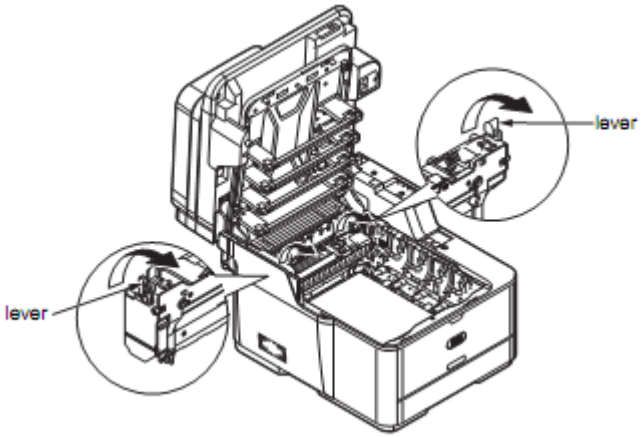
1. Remove any paper from the document trays.
2. Open the scanner unit.
3. Press the top cover open button and open the top cover.

Important! Touch any screw inside the machine to remove static electricity from your body.

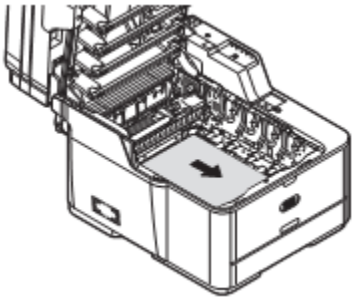
1. Remove Drum

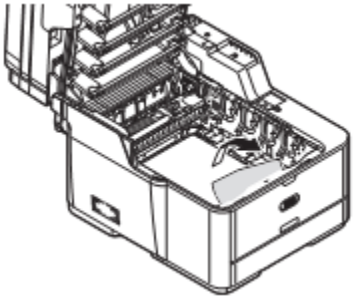


2. Remove Fuser



4. Remove Paper in directions shown



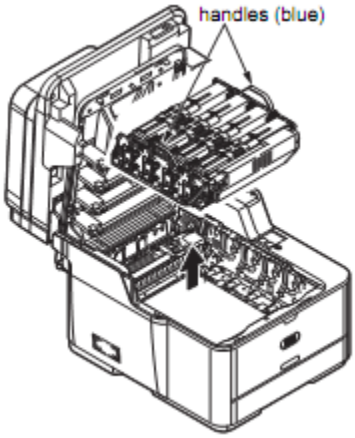


Error Code 372

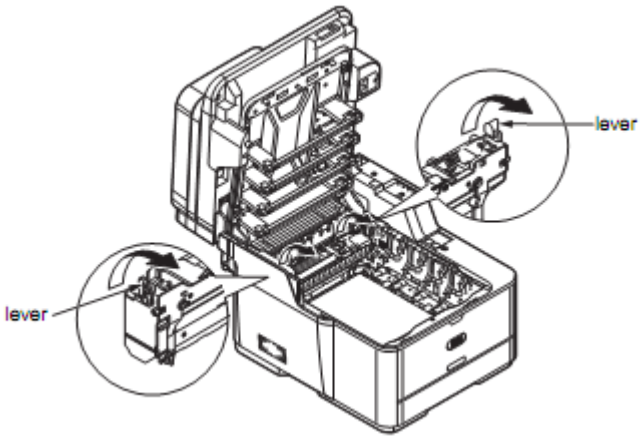
1. Remove any paper from the document trays.
2. Open the scanner unit.
3. Press the top cover open button and open the top cover.

Important! Touch any screw inside the machine to remove static electricity from your body.

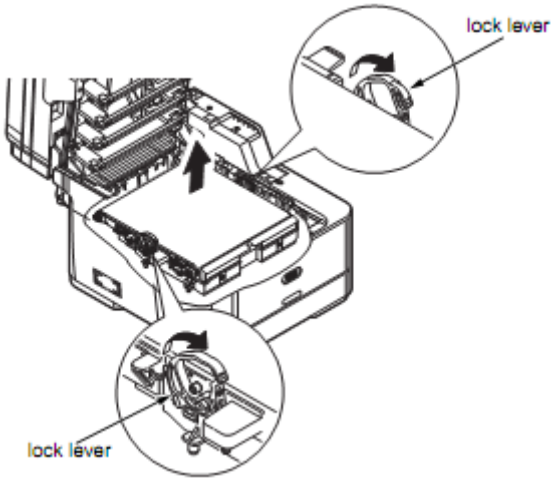
1. Remove Drum



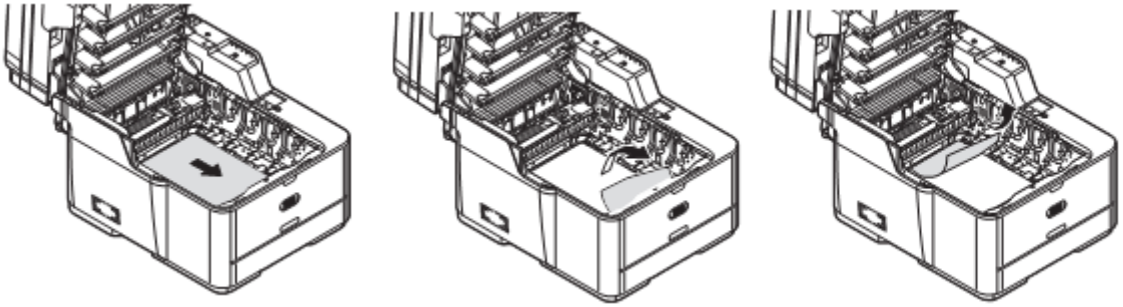
2. Remove Fuser



3. Remove Belt



4. Remove Paper in directions shown

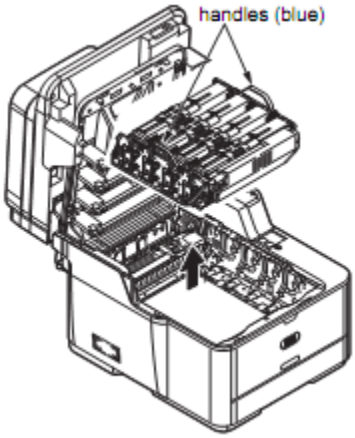


Error Code 380, 390

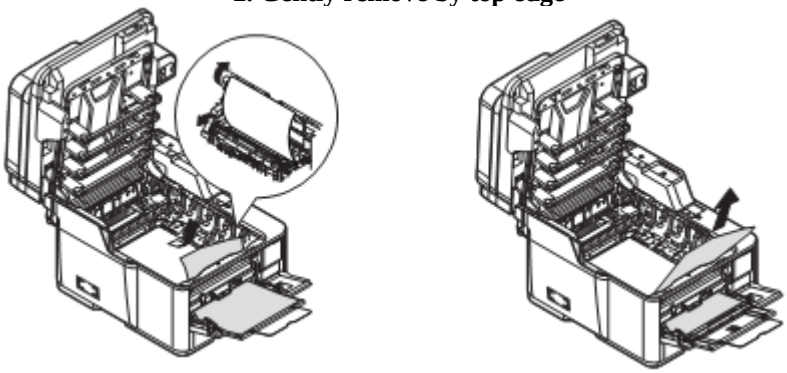
1. Remove any paper from the document trays.
2. Remove any paper in the MP tray.
3. Open the scanner unit.
4. Press the top cover open button and open the top cover.

Important! Touch any screw inside the machine to remove static electricity from your body.

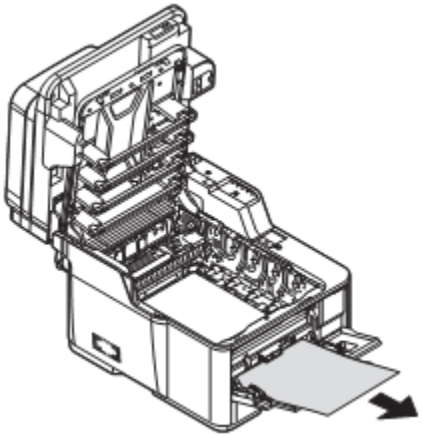
1. Remove Drum



2. Gently remove by top edge



3. If the top edge of the paper cannot be seen, slowly pull out the paper with by the bottom edge.

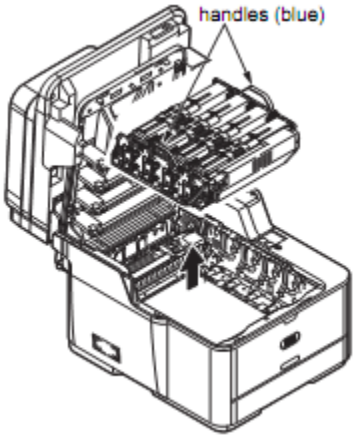


Error Code 381, 382, 385

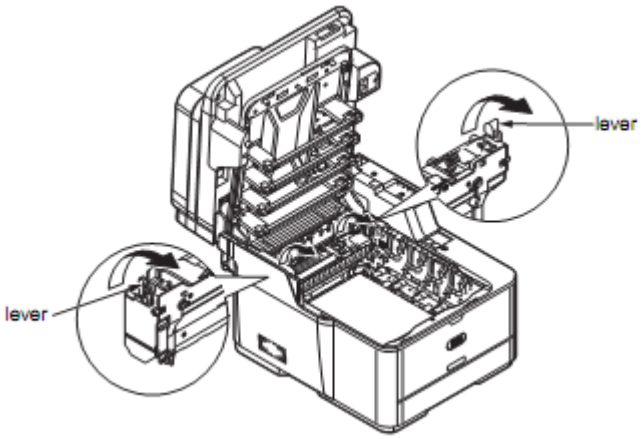
1. Remove any paper from the document trays.
2. Open the scanner unit.
3. Press the top cover open button and open the top cover.

Important! Touch any screw inside the machine to remove static electricity from your body.

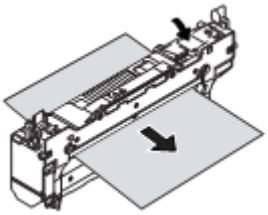
1. Remove Drum



2. Remove Fuser



3. Press jam release lever & remove Paper

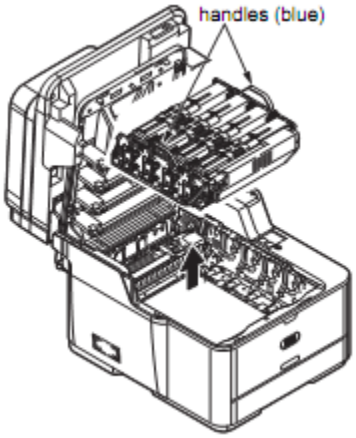


Error Code 389

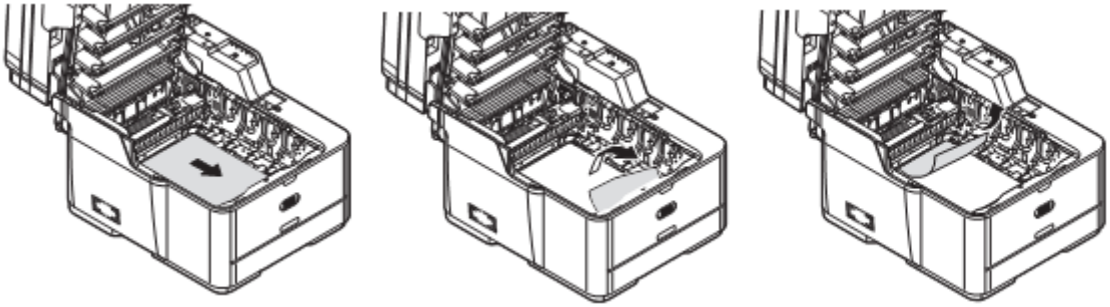
1. Remove any paper from the document trays.
2. Open the scanner unit.
3. Press the top cover open button and open the top cover.

Important! Touch any screw inside the machine to remove static electricity from your body.

1. Remove Drum

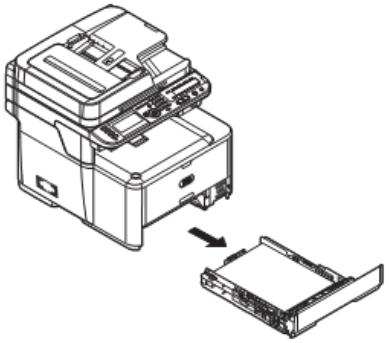


2. Remove Paper in directions shown

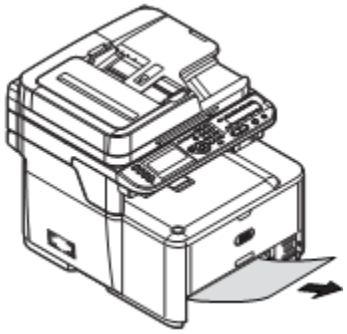


Error Code 391, 392

1. Remove Cassette

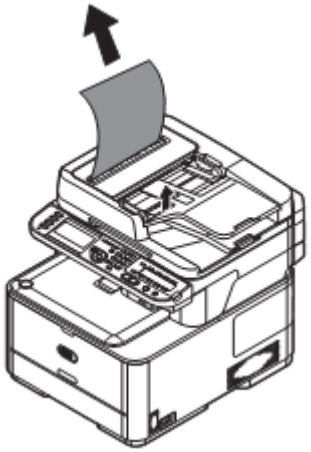


2. Remove Paper



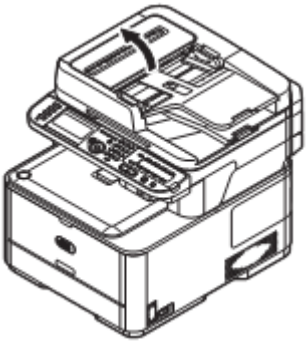
Document Jam (Duplex Path)

1. Open ADF cover to remove paper

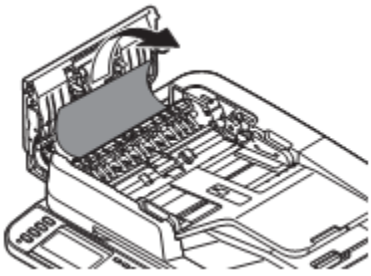


Document Jam (ADF)

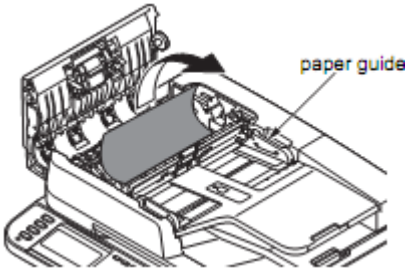
1. Open ADF cover



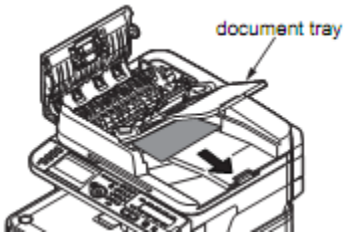
2. Remove paper by top edge



3. Check under paper guide



4. Check under document tray



Chapter 5 Troubleshooting Error Codes

Troubleshooting Self Diagnostic Codes

Self Diagnostic Error Codes

Code	Cause/Description	Remedy
001	Machine Check Exception A hardware error was detected (board failure or insufficient power supply capacity).	Replace the CU/PU board.
002 - 011	CPU Exception	Remove any RAM DIMM and turn off and on the MFP. Replace the CU/ PU board. Reinstall the RAM DIMM.
020	CU ROM Hash Check Error	Turn off and on the MFP. Replace the CU/ PU board.
030	CU RAM Check Error	Turn off and on the MFP. Replace the CU/ PU board.
031 / 036	CU Optional RAM Check Error Is RAM DIMM installed properly?	Reinstall the RAM DIMM. Replace the RAM DIMM. Replace the CU/ PU board.
040	CU EEPROM Error	Turn off and on the MFP. Replace the CU/ PU board.
041	CU FLASH Error CU PCB FLASH ROM Error	Turn off and on the MFP. Replace the CU/PU Board
042 - 045	Flash memory file system error Accessing the flash ROM directly mounted on the CU/ PU board failed.	Turn off and on the MFP. Replace the CU/ PU board.
052	Image processor driver error	Turn off and on the MFP. Replace the CU/ PU board.
054	A communication error of the scanner unit A communication error was detected between the Controller and scanner unit.	Record a value displayed far right at the bottom of LCD and turn on the power unit again.
055	A communication error of the scanner unit The Controller detected an error after communication between the Controller and scanner unit was established.	Call for service to review the connection between the scanner and printer or to replace the device if the symptom persists after you turn on the power unit again.
057	The timeout of command communication of the scanner The timeout of command communication was detected between the Controller and scanner unit (A sub code indicates a cause). 01: There is no ACK for a command to start scanning. 02: There is no ACK for a command to cancel scanning. 03: There is no ACK for a command to cancel SIP.	Record a value displayed far right at the bottom of LCD and turn off/on the power unit.
058	An error of the scanner controlling area An internal error was detected in the scanner controlling area of the Controller.	Record a value displayed far right at the bottom of LCD and turn off/on the power unit.
059	A communication error of the scanner unit The scanner unit detected an error after communication between the Controller and scanner unit was established.	Call for service to review the connection between the scanner and printer or to replace the device if the symptom persists after you turn on the power unit again.
064	SD Card Missing Error Is a SD Card installed in the unit, properly?	Power unit off and reinstall SD card. Replace SD Card. Replace CU/PU board.
067 - 068	Interface monitor error	Turn off and on the MFP. Replace the CU/ PU board.
069	NIC Chip Error	Turn off and on the MFP. Replace the CU/ PU board..
070	Postscript core error Error is detected inside the postscript core.	Take note of the address that is displayed on LCD. Turn off and on the MFP.
072	Engine interface error or PU-CU interface error Is the CU/PU board installed properly?	Reinstall the CU/ PU board properly. Replace the CU/ PU board.

Code	Cause/Description	Remedy
073	Video error An error was detected in expanding image data (an invalid data was received)	Change the PC to a high-specification one or decrease the resolution, and perform printing again. Reinstall the printer driver. Perform printing again. Print other data. Replace the CU/PU board.
074 – 075	Video Error An error was detected in expanding image data.	Decrease resolution, and execute printing again. Replace the CU PCB
081	Parameter matching check error Reading from or writing into EEPROM or flash memory cannot be made properly.	Turn off and on the MFP. Replace the CU/PU board when the symptom persists
104	An engine EEPROM read/write error was detected.	Turn off and on the MFP. Replace the CU/ PU board.
106	Engine control logic error.	Turn off and on the MFP. Replace the CU/ PU board.
111	Duplex unit for a different model was detected	Install the correct Duplex unit.
112	The 2nd tray for a model different from the MFP was detected.	Install the correct 2nd tray.
113	The 3rd tray of another model is detected.	Install the correct 3rd tray.
121	High-voltage power supply interface error Is the cable between the CU/ PU board and the high-voltage power unit connected properly? Is a contact faulty?	Reconnect it properly. Check the high-voltage line for no poor connection. Replace the high- voltage power supply.
122	Rear-fan error Does the fan at the rear of the MFP operate? Is the connector of the fan connected properly?	Be sure of the connection of the fan. Connect the fan properly. Replace the CU/PU board.
123	Ambient humidity error or non connection of humidity sensor Is the cable from the CU/PU board to the toner sensor board connected properly?	Re-connect it properly. Replace the toner sensor board.
124	Ambient temperature error Is the cable from the CU/PU board to the toner sensor board connected properly?	Re-connect it properly. Replace the toner sensor board.
126	Condensation on the device was detected. Condensation is likely to form in such a case that a device is carried in from the outdoors. Leave the device untouched for two hours to a half day and turn on the power unit.	Leave the device untouched and turn on the power unit. Replace a control panel board.
127	An error of exhaust fan of the Fuser Is the fan's connector properly connected?	Connect properly. Replace the fan's motor. Replace the CU/PU board.
128	**05:** Image drum fan error **07:** Front fan error Is the connector of the fan connected properly?	Re-connect it properly Replace the fan motor. Replace the CU/PU board.
131 – 134	LED head detection error **131**=Y **132**=M **133**=C **134**=K Is the LED head installed properly? Is the LED head fuse broken?	Install the LED head unit. Check the LED head fuse. (For the fuse check method, refer to section 2.8.11.) Turn off and on the MFP. Replace the LED head unit. Replace the CU/PU board.
142	Image drum up-down movement position detection error Is the image drum unit removed and installed smoothly? Is the connector of the image drum up-down clutch is connected properly?	Be sure of the connection of the image drum up-down clutch connector. Replace the toner sensor board. Connect the image drum up/down clutch properly.
153	Image drum unit fuse-cut error Is the image drum unit installed properly?	Re-install image Drum Unit. Turn off and on the MFP. Be sure of the cable connection from the CU/PU board to the toner sensor board, and then replace the toner sensor board. Replace the CU/PU board.
154	Belt unit fuse-cut error Is the belt unit installed properly?	Re-install Transfer Belt Unit. Turn off and on the MFP. Be sure of cable connection, and then replace the CU/PU board.

Code	Cause/Description	Remedy
155	Fuser unit fuse-cut error Is the fuser unit installed properly?	Clean the connection connector of the fuser unit, and then re-install the fuser unit. Turn off and on the MFP. Be sure of cable connection, and then replace the CU/PU board.
160 – 163	Toner sensor detection error 160=Y, 161=M, 162=C, 163=K). This error does not occur with the MFP in the factory shipped configuration.	Install the toner cartridge. Turn it to the fixed (locked) position. Turn off and on the MFP. Replace the toner sensor assembly.
167	Thermistor slope error	Turn off and on the MFP. Turn off and on the MFP after leaving it for 30 minutes.
168	Compensation thermistor error	Turn off and on the MFP. Turn off and on the MFP after leaving it for 30 minutes.
169	An error of the Upper Side Thermistor	Turn off and on the MFP. Turn off and on the MFP after leaving it for 30 minutes.
170 – 171	A fuser thermistor short or open circuit was detected.	After cleaning the connectors of the Fuser, re-install it. Turn off and on the MFP. Replace the fuser unit.
172 – 173	A fuser thermistor temperature error (high or low temperature) was detected.	After cleaning the connectors of the Fuser, re-install it. Turn off and on the MFP. Replace the fuser unit. Replace the low-voltage power supply. Replace the CU/PU board.
174	A backup thermistor shot circuit was detected (high temperature)	Turn off and on the MFP. Replace the fuser unit.
175	A backup thermistor open circuit was detected (low temperature)	Turn off and on the MFP. Replace the fuser unit.
176 – 177	A backup thermistor temperature error (high or low temperature) was detected.	Turn off and on the MFP. Replace the fuser unit. Replace the Low Voltage Power Supply.
182	Option unit I/F error	Turn off and on the MFP. Be sure of connector connection. Replace the option unit.
190	System memory overflow	Turn off and on the MFP. Replace the CU/PU board.
200 – 202	PU firmware download error An error occurred in re-writing the PU firmware.	Turn off and on the MFP, and then re-download it (In general use of the MFP, this re-writing is not performed and this error does not occur)
203 – 208 **213 – 214** **F0C** **FFE** **FFF**	CU program error (203 to 214 do not occur in general use of the MFP) Invalid processing was performed with a CU program.	Replace the CU/PU board.
209	Custom Media Type table downloading failure Custom Media Type table downloading failed.	Turn off and on the MFP, and then re-download it (In general use of the MFP, this downloading is not performed and this error does not occur)
231	TAG interface error IA TAG interface error was detected. 01 : A short-circuit error. 03 : TAG communication error.	Be sure the toner cartridges and the image drums are properly set. Replace the toner cartridges. When the error occurs again after the image drums are re-installed, be sure of the cable connection from the CU/PU board to the toner sensor board.
250	SD card error	
251	SD card erasure error	
252 – 255	SD card security error	
256 – 257	SD card error	

Code	Cause/Description	Remedy
802 – 803 **805** **807** **808**	SU Exception	Turn off and on the MFP. Replace the SU board.
811 – 813	SU Communication Error Communication error between the Controller and the Scanner Unit is detected.	Turn off and on the MFP.
890	SU System Memory Overflow	Turn off and on the MFP. Replace the SU board.
901 – 904	Belt temperature error **901**: Short circuit **902**: Open circuit **903**: High temperature **904**: Low temperature Is the cable from the belt thermistor to the CU/PU board connected properly?	Connect the cable properly. Turn off and on the MFP. Replace the belt thermistor.
918	An alarm of Duplex Fan was detected. An error of a fan inside the Duplex.	Review whether or not the Duplex is installed properly. Review whether or not the fan is installed properly. Replace the fan
923	A lock error with black image drum The image drum does not revolve properly.	Be sure the image drum is properly installed properly. Replace the image drum unit. Replace the image drum motor.
928	Fuser motor lock error	Check that the fuser is properly installed. Replace the fuser. Replace the fuser motor.
933	Tray-2 CPU clock frequency error	
941 – 944	PU Error A PU error was detected. **941** : Watch Doc Timer Error **942** : Detection of Unassigned Interruption **943** : CPU Error Detection **944** : Dcon Access Error	Turn off and on the MFP. When this error occurs again, replace the CU/ PU board.
980	Media jamming error around fuser Media is jammed by entangling around the fuser.	Turn off the MFP. Replace the fuser.
983	Duplicate toner cartridge detection error Multiple toner cartridges for the same color were detected.	Install toner cartridges for specified colors at the proper positions
990	Waste toner sensor detection error	Install the K toner cartridge. Be sure of cable connection, and then perform board replacement.

Note! With the MFP's temperature not more than 0ºC, Service call errors 168 Error, 171 Error, 175 Error, 903 Error and 904 Error may occur. After turn off the MFP, turn on the MFP after the MFP warms.